AGENDA
CALIFORNIA TRAFFIC CONTROL DEVICES COMMITTEE (CTCDC)
January 15, 2009 Meeting
City of Lincoln, 600 Sixth Street Lincoln, CA 95648
Starting Time 9:00 A.M.

Organization Items

1 Introduction
2 Approval of Minutes (September 17 and 18, 2008 Meeting)
3 Public Comments

At this time, members of the public may comment on any item not appearing on the agenda. Matters presented under this item cannot be discussed or acted upon by the Committee at this time. For items appearing on the agenda, the public is invited to make comments at the time the item is considered by the Committee. Any person addressing the Committee will be limited to a maximum of five (5) minutes so that all interested parties have an opportunity to speak. When addressing Committee, please state your name, address, and business or organization you are representing for the record.

Agenda Items

4 Public Hearing

Prior to adopting rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to Section 21400 of the California Vehicle Code (CVC), the Department of Transportation is required to consult with local agencies and hold public hearings.

		Page #s
07-17	Proposal for C17A (CA) ROAD WORK Plaque and Amendment to CA MUTCD Section 6F.104	(Continued) (Henley) 6-14
08-8	Bicycle and Motorcycle Detection at New or Upgraded Signalized Intersections (Required due to AB 1581)	(Continued) (Henley) 15-21
08-17	Proposal to adopt California Alternative Fuel signs as optional signs (formally known as "BIODIESEL" plaque and the "Ethanol 85 (E85)" signs) (Requested by Caltrans)	(Continued) (Henley) 22-28
09-1	Proposal to amend policies for Unincorporated Community, City Limit Signs and County Line Signs (Formally listed as Item No. 08-9) (Requested by the CTCDC)	(Continued) (Henley) 29-31
09-2	Amendment to Section 2A.22 Maintenance of the CA MUTCD (Request submitted by Caltrans)	(Introduction (Henley) 32
09-3	Amendment to Section 6F.63 Type I, II, or III Barricades (Request submitted by Caltrans)	(introduction) (Henley) 33-34
09-4	Amendment to Sections 8D.05 and 10D.04 of the CA MUTCD (Request submitted by CPUC)	(Introduction) (Henley) 35-36
09-5	Amendment to CA MUTCD Sections 2B.03 Size of Regulatory Signs and 2C.04 Size of Warning Signs (Request Submitted by Caltrans)	(Introduction) (Henley) 37-38
09-6	Amendment to CA MUTCD Section 2D.45 General Service Signs (D9 Series) (Request submitted by Caltrans)	(Introduction) (Henley) 39

07-6 Delete the symbolic NO TURN ON RED (R10-11) sign
(Final Policy for the R10-11sign has been posted on the CA MUTCD website at the following link under item "08-3"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

07-11 Veterans National Cemetery G86-14(CA) Signs

(Final Policy for the G86-14(CA) has been posted on the CA MUTCD website at the following link under item "08-5"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

07-15 Proposal to Adopt "Safety Awareness Zone Next XX Miles"

(Final Policy for the S33(CA) sign has been posted on the CA MUTCD website at the following link under item "08-3"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

08-1 Amendment to CA MUTCD Section 2B.112(CA) Daylight Headlight Signs (S30(CA)

(Final Policy for the S30(CA) series has been posted on the CA MUTCD website at the following link under item "08-3"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

07-4 Proposal to Adopt "Transporting Fireworks Prohibited" SR25(CA) Sign

(Final Policy for the SR25(CA) sign has been posted on the CA MUTCD website at the following link under item "08-4"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

08-16 Proposal to amend Section 7B.11 & 7B.12 0f CA MUTCD (Introduction) due to AB321

(Final Policies for the S4-5 & S4-5a signs has been posted on the CA MUTCD website at the following link under item "08-6"): link http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

08-23 Workers Visibility

(Final Policy was posted on the CA MUTCD website at the following link under item "08-7"): http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy.htm)

08-25 Proposal to Seek Blanket Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (1A-11) from the FHWA

(The CTCDC recommended not adopting the FHWA Interim Approval (IA) in California, instead Committee encourage to agencies to seek approval from the CTCDC and test multiple devices. If other devices are equally effective, then why limit to a particular shape and size as an IA issued by the FHWA. For detail see item 1A-11 on the following website: http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/interim.htm):

9 Tabled Item

08-22	Proposal to amend CA MUTCD Section 10C.15 & 10C.23 (Item Deferred for the Future Meeting)	(Continued) (Wong)
06-7	MUTCD 2003 Revision No. 1 (Pharmacy Signing) (Proposed to Adopt Pharmacy Signing in CA)	(Continued) (Henley)
08-18	Proposal to adopt "NO IDLING COMMERCIAL VEHICLES & SCHOOL BUSES" (Item Deferred for the Future Meetings)	(Continued) (Henley)

9 Next Meeting

10 Adjourn

ITEM UNDER EXPERIMENTATION

04-9	Request to Experiment with "Watch The Road" Sign (Proposed by the Los Angles DOT)	(Bahadori)
06-2	Experiment with Colored Bike Lane (Proposed by the City of San Francisco)	(Banks)
06-5	Clear The Way Signage (Drive Damaged Vehicle to Shoulder) (Proposed by the CHP and MTC)	(Whiteford)
07-7	Experimentation by Implementation of Two New School Site Loading Signs	
07-19	Wildlife Corridor Signage (Proposed by the County of San Bernardino)	(Babico)
08-7	Request for Experimentation with new Warning Sign for Bicyclists (Proposed by the City/Co of San Francisco)	(Wong)
08-19	Proposal to Experiment with Internally Illuminated Directional Turn Signs (IIDTS) (During the September 2008 meeting, the Committee made recommendations for the adoption IIDTS into the CA MUTCD, therefore, staff recommends for the closure of this item).	(Henley)
08-20	Request to Experimentation with Flashing Yellow Arrow for Permissive Right Turn Movement	(Mansourian)
08-21	Proposal to Experiment with Regulatory Sign "BIKES IN LANE" with Bicycle Symbol (Originally submitted as "Bike May Use Full Lane")	(Henley)

Pending Items for Caltrans Action

01-1 U-Turn Signal Heads Indicator

02-15 Radar Guided Dynamic Curve Warning Sign

06-9 Proposal to adopt C43 (CA) signs

07-1 Proposal to revise the sizes for the Supplemental School Plaques (S4-3, W16-7p and W16-9p)

07-5 Proposal to Amend Section 2C.29 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)

07-12 Amendment to CA MUTCD Section 4E.08 Pedestrian Detectors

07-18 Proposal to Amend "FWY Detour With Arrow" SC9 (CA) Sign and Adopt "Exit With Arrow Sign"

07-22 Proposal to adopt "Trucks Entering Exiting" sign C44 (CA)

07-23 Bus Preferential Only Lane Signs

07-24 Installation of School Assembly C in Rural Areas with Sidewalks

08-3 Amendment to CA MUTCD Section 4D.17 Visibility, Shielding, and Positioning of Signal Faces

08-4 Bus Preferential Only Lane Signs

08-5 No Double - Parking Anytime Commercial Vehicles Signs

08-9 Proposal to amend policies for the STOP sign

08-10 Proposal to adopt "WATCH FOR STOPPED VEHICLES" sign

08-12 Report DRUNK DRIVERS – CALL 911 (G81-6X(CA)

08-13 MUTCD 2003 Revision No. 2 Maintaining Traffic Sign Retroreflectivity

08-14 Proposal to amend recommendations made by the CTCDC in regards to Section 2B.13 Speed Limit Sign (R2-1) of CA MUTCD

08-15 Proposal to amend Fire Station SG38 (CA) & SG39 (CA) signs

08-19 Proposal to adopt ACTIVATED BLANK-OUT Directional and DO NOT ENTER & WRONG WAY signs.

08-24 Proposal to Adopt POST OFFICE Directional SG60(CA) sign

07-17 Proposal to amend reduced speed limits policy in TTC zones and adopt WORK ZONE Plaque & END WORK ZONE SPEED LIMIT Sign

RECOMMENDATION:

Caltrans requests that the Committee recommend adoption of the amended policy for reduced speed limits in temporary traffic control (TTC) zones and the WORK ZONE Plaque and END WORK ZONE SPEED LIMIT Sign into the California MUTCD.

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND:

Caltrans Division of Construction is requesting a change in current policy for reduced speed limits in TTC zones and the inclusion of WORK ZONE Plaque & END WORK ZONE SPEED LIMIT Sign into the California MUTCD.

A similar request on the same topic was made during the June 7, 2007 meeting when Caltrans had requested the committee to recommend the ROAD WORK Plaque for use with the Speed Limit Sign in TTC zones. Based on the meeting discussion, this proposal was continued for the next meeting and Caltrans was asked to address the questions raised by the Committee members. Following are the summarized comments raised by the committee at the June 7, 2007 meeting:

- The use of "ROAD WORK" versus "WORK ZONE."
- The text should consider "when workers are present."
- The text be formatted per John Fisher's suggestion:
- The language needs to be more generic, instead of specifying only for state highways, it should be for high speed roadways.
- The conditions 1 through 6 needs to be either "should" or "shall" conditions.
- The text needs be follow the MUTCD format.
- Review number 3, 4 and 5 conditions as discussed above.
- Why not make the existing sign Road Work/Speed Limit (C17 (CA)) sign to be used on state highway? Consider changing the policy or CVC.

This proposal was tabled in subsequent meetings.

Since tabling of this proposal in 2007, FHWA is now proposing in the next revision to the MUTCD, two new signs to reduce speed limits in TTC zones, WORK ZONE Plaque & END WORK ZONE SPEED LIMIT Sign. The proposed Notice of Proposed Amendment (NPA) to the MUTCD was open for public comment from January 2, 2008 through July 31, 2008. When FHWA issues a final rule for this revision, likely sometime in 2009, then Caltrans will look at adopting this rule for all public roadways in California within 2 years of the issuance of the final rule.

During the September 17 and 18, 2008 CTCDC meeting's discussion of this item, question was raised as to whether the reduced speed limits in TTC zones (and related signs) are applicable only when workers are present on the roadway (as per CVC 22362) or they can be applicable at all times through a TTC zone. Caltrans was requested to research the topic further (and bring this item back to the CTCDC) to ensure that the proposed policy does not conflict with the CVC.

Caltrans review on the posed question indicates that CVC 22362 only applies to "When Workers are Present" condition and signs need to be covered or removed when no work is in progress. However, per CVC 21367, agency can "...regulate the movement of traffic...whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area."

These signs would not be covered or removed since they could apply throughout the project duration or certain stage construction phases. This would also apply to situations where the construction work changes the highway configuration, curvature or elevation, making it necessary to post reduced speed limits. This clarification is based upon the attached Caltrans legal opinion on this issue formalized in a memo dated September 26, 2006.

CVC 21367:

(a) As provided in Section 125 of the Streets and Highways Code and in Section 21100 of this code, respectively, the duly authorized representative of the Department of Transportation or local authorities, with respect to highways under their respective jurisdictions, including, but not limited to, persons contracting to perform construction, maintenance, or repair of a highway, may, with the approval of the department or local authority, as the case may be, and while engaged in the performance of that work, restrict the use of, and regulate the movement of traffic through or around, the affected area whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area. Traffic may be regulated by warning signs, lights, appropriate control devices, or by a person or persons controlling and directing the flow of traffic.

(b) It is unlawful to disobey the instructions of a person controlling and directing traffic pursuant to subdivision (a).

(c) It is unlawful to fail to comply with the directions of warning signs, lights, or other control devices provided for the regulation of traffic pursuant to subdivision (a).

CVC 22362:

It is prima facie a violation of the basic speed law for any person to operate a vehicle in excess of the posted speed limit upon any portion of a highway where officers or employees of the agency having jurisdiction of the same, or any contractor of the agency or his employees, are at work on the roadway or within the right-of-way so close thereto as to be endangered by passing traffic. This section applies only when appropriate signs, indicating the limits of the restricted zone, and the speed limit applicable therein, are placed by such agency within 400 feet of each end of such zone. The signs shall display the figures indicating the applicable limit, which shall not be less than 25 miles per hour, and shall indicate the purpose of the speed restriction. Nothing in this section shall be deemed to relieve any operator of a vehicle from complying with the basic speed law.

The FHWA's proposed change to the next edition of the MUTCD to incorporate the new sign and plaque into the final rule are shown below:

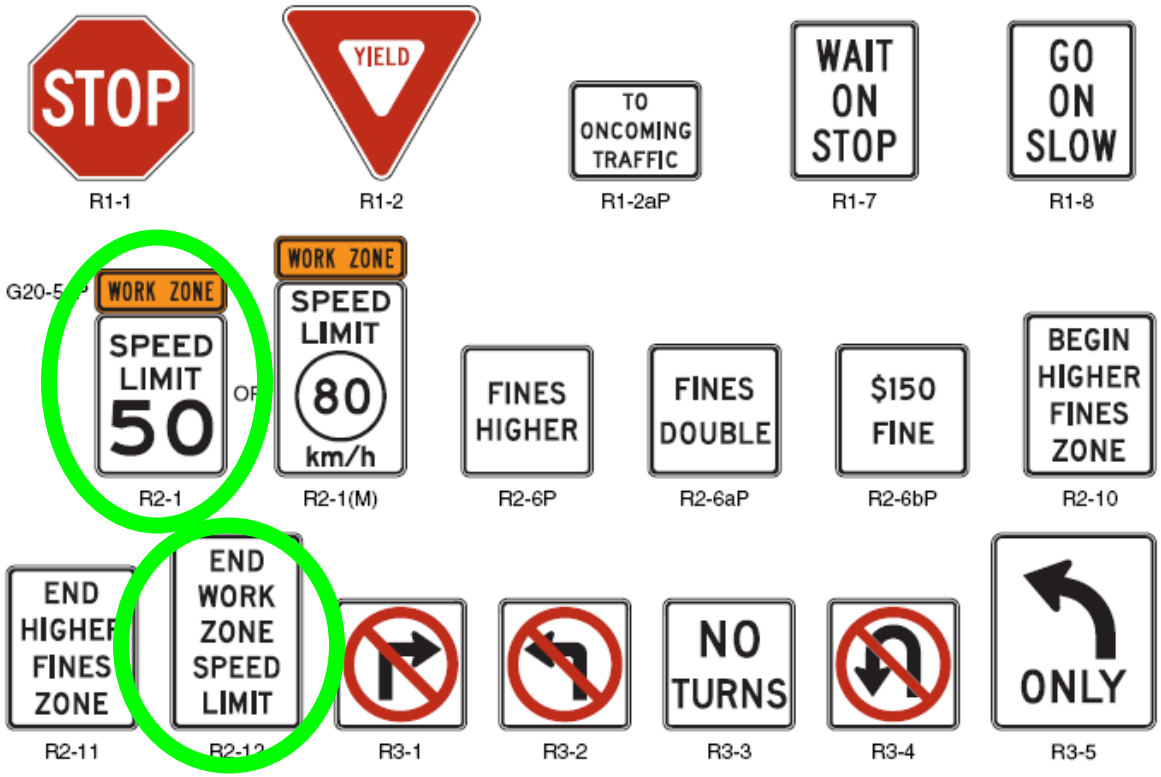
The proposed NPA is available at the following web links:
http://a257.g.akamaitech.net/7/257/2422/01jan20081800/edocket.access.gpo.gov/2008/pdf/E7-24863.pdf
http://mutcd.fhwa.dot.gov/resources/proposed_amend/index.htm

Section 6F.12 Work Zone and Higher Fines Signs and Plaques

Option:

A WORK ZONE (G20-5aP) plaque (see Figure 6F-3) may be mounted above a Speed Limit sign to emphasize that a reduced speed limit is in effect within a TTC zone. An END WORK ZONE SPEED LIMIT (R2-12) sign (see Figure 6F-3) may be installed at the downstream end of the reduced speed limit zone.

Figure 6F-3. Regulatory Signs and Plaques in Temporary Traffic Control Zones
(Sheet 1 of 2)



Following are some excerpts from the final rule, as published in the Federal register on November 24, 2006:

The proposed new section is numbered and titled ``Section 6F.12 Work Zone and Higher Fines Signs and Plaques.'' This proposed new section contains an OPTION statement describing the use of the WORK ZONE plaque above a Speed Limit Sign to emphasize that a reduced speed limit is in effect within a TTC zone and the FINES HIGHER, FINES DOUBLED, and $XX FINE plaques that may be mounted below the Speed Limit sign if increased fines are imposed for traffic violations within the TTC zone, as well as the associated signs that may be used to mark the beginning and ends of these zones. The remaining sections in Chapter 6F would be renumbered accordingly.

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: ROBERT PIEPLOW
Chief, Division of Construction

Date: September 26, 2006

File:

From: MATTHEW B. GEORGE
Attorney
Legal Division – MS 57

Subject: Authority of Department to Establish Speed Limits in Construction Zones

Question Presented

Does the Department have the legal authority to reduce the speed limit within a construction zone without an engineering and traffic survey?

Summary Conclusion

The Department already has authority to reduce the speed limit within a construction zone and does not require additional legislation.

Background

The Division of Traffic Operations and the Division of Construction have asked for clarification regarding Department authority to reduce the speed limit within a construction zone. Traffic Operations interprets Cal. Veh. Code section 22354 (all statutory references are to the Vehicle Code unless otherwise stated) to require an engineering and traffic survey before reducing the speed limit whereas Construction relies upon section 22362 for the proposition that the Department may reduce the speed limit in a construction zone, provided that proper signage is in place.

Analysis

The basic speed law is set forth in section 22350 and simply states that "[n]o person shall drive a vehicle upon a highway at a speed than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of the highway, and in no event at a speed which endangers the safety of persons or property."

Section 22362, entitled "Speed limit where road work underway" incorporates the basic speed law as follows:

> It is prima facie a violation of the basic speed law for any person to operate a vehicle in excess of the posted speed limit upon any portion of a highway where officers or employees of the agency having jurisdiction of the same, or any contractor of the agency or his employees, are at work on the roadway or within the right-of-way so close thereto as to be endangered by passing traffic. This section applies only when appropriate signs, indicating the limits of the restricted zone, and the speed limit applicable therein, are placed by such agency within 400 feet of each end of such zone. The signs shall display the figures indicating the applicable limit, which shall not be less than 25 miles per hour, and shall indicate the purpose of the speed restriction. Nothing in this section shall be deemed to relieve any operator of a vehicle from complying with the basic speed law.

This code section not only confers specific authority on the Department to reduce the speed limit, it also mandates exactly how the reduction is to be accomplished and limits the reduction to speeds not less than 25 miles per hour.

Additional authority for the regulation of traffic during highway construction or repair is found in section 21367 which provides that a duly authorized representative of the Department may "restrict the use of, and regulate the movement of traffic through or around, the affected area whenever the traffic would endanger the safety of workers or the work would interfere with or endanger the movement of traffic through the area" while engaged in the construction, maintenance, or repair of a highway under its jurisdiction. This authority is expressly extended to contractors.

Section 22354 "Changing the prima facie speed limit" requires that a reduction in a speed limit may only be made "upon the basis of an engineering and traffic survey" and sets a minimum prima facie speed of 25 miles per hour. The section creates a rule of general application rather than one tailored to a specific, identified need. If the construction were to result in a structure or infrastructure that required a permanent reduction in the speed limit, a thorough engineering and traffic survey would be required.

It is important to note that the nature of the construction project must also be taken into account. There is, for example, specific authority for traffic regulation "while engaged in the construction of a state highway upon new alignment." (Section 21370).

Conclusion

Reviewing the statutes *in pari materia*, and following the principle that specific language prevails over general, the Department may reduce the speed limit in construction zones to speeds not less than 25 miles per hour pursuant to section 22362.

If the Department needs to reduce the speed limit below 25 miles per hour in construction zones, it should seek amendments to the appropriate sections cited above.

bcc: David E. Gossage, SFLO
Linda Harrel, LALO
Jeffrey A. Joseph, SDLO
Thomas C. Fellenz, SLO
Opinion File
Legal Library (with LD-22)
Matthew B. George

PROPOSAL:

The existing California MUTCD policy is shown below in black text (National MUTCD) and blue text (CA MUTCD additions/edits), while amendments/additions per this proposal are shown in red text.

Section 6C.01 Temporary Traffic Control Plans

Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present. However, frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can reasonably safely travel through the TTC zone with a speed limit reduction of no more than 16 km/h (10 mph).

A reduction of more than 16 km/h (10 mph) in the speed limit should be used only when required by restrictive features in the TTC zone. Where restrictive features justify a speed reduction of more than 16 km/h (10 mph), additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.

Reduced speed zoning (lowering the regulatory speed limit) should be avoided as much as practical because drivers will reduce their speeds only if they clearly perceive a need to do so.

Support:

Research has demonstrated that large reductions in the speed limit, such as a 50 km/h (30 mph) reduction, increase speed variance and the potential for crashes. Smaller reductions in the speed limit of up to 16 km/h (10 mph) cause smaller changes in speed variance and lessen the potential for increased crashes. A reduction in the regulatory speed limit of only up to 16 km/h (10 mph) from the normal speed limit has been shown to be more effective.

Support:

~~See Section 2B.116(CA) for more information on speed limits and zones.~~

See Section 2B.13 for Speed Limit and Speed Zone signs.

See Section 6F.104(CA) for Road Work/Speed Zone (C17(CA)) sign, WORK ZONE (G20-5aP) plaque and END WORK ZONE SPEED LIMIT (R2-12) sign.

Construction Speed Zones:

Construction speed zones are established on roads under construction where reduced speed is necessary to limit the risk of an accident to workers and the traveling public during all hours of the day and night. Protection of workers during working hours is provided for under CVC Section 22362.

Guidance:

Construction speed zones should be avoided if traffic can be controlled by other means. Speed restrictions should be imposed on the public only when necessary for worker or public safety.

Standard:

Where traffic obstructions exist only during the hours of construction, the speed zone signs shall be covered during non-working hours.

Guidance:

The traveled way should be signed and delineated to communicate physical conditions to the motorists such as curvature, narrow roadways, detours, rough roads, dips or humps, etc.

Option:

The Advisory Speed (W13-1) plaque may be used in combination with various warning type signs to decrease speed at a particular location.

Guidance:

To preserve the effectiveness of the W13-1 plaque, it should not be used unless the condition to which it applies is immediate and will be experienced by all motorists.

Option:

Reduced speed limits in construction zones may be established by an engineering analysis, which may include a traffic and engineering survey.

Guidance:

The speed limit should ~~not~~ be lowered ~~more than~~ in 16 km/h (10 mph) increment, if lowering speed more than 16 km/h (10 mph) below the posted or maximum speed.

Standard:

The reduced speed limit shall not be less than 40km/h (25 mph). Refer to CVC 22362.

Option:

If the project falls within an established 105 km/h (65 mph) zone, and a 70 km/h (45 mph) speed limit is considered necessary, it may be posted only if the approaching speed limits are lowered in two stages (i.e., first to a 90 km/h (55 mph) speed limit followed by a reduction to the desired 70 km/h (45 mph).

Guidance:

Speed Limit and End Zone signs should be installed at locations jointly agreed upon by the Traffic Engineer and the Construction Engineer. The speed zone should be verified by an engineering and traffic survey.

Construction Engineer should observe prevailing vehicle speeds within the TTC zone that create a risk for workers, and public safety; and should request reduced speed limits to be established within the project limits, when workers are present.

Traffic Engineer, or their designee, should analyze prevailing speeds through the TTC zone; and, after consultation with the Construction Engineer and the California Highway Patrol, and/or local law enforcement, should develop consensus to establish reduced speed limits, when workers are present. The reduced speed limit should be jointly agreed upon in writing by the Traffic Engineer and the Construction Engineer, or their designees, for reduction of the posted speed limit.

Contracted law enforcement should provide Construction Zone Enhanced Enforcement in the TTC zone; and, cite violators of the reduced speed limit under the Basic Speed Law (CVC 22500) without the use of radar enforcement or other electronic methods.

Support:

Orders for construction speed zones are ordinarily issued for the entire length of the construction project. This avoids the necessity and resulting delay of obtaining a new order each time the speed restriction signs require relocation to fit the conditions. It is not the intention, however, that the entire length be posted for the duration of the contract.

Standard:

Speed restriction signs shall be posted only in areas where the traveling public is affected by construction operations.

Guidance:

As the construction progresses, signs should be moved as appropriate.

Standard:

Signs shall be used only during working hours and removed, or covered during non-working hours.

Signs shall be removed immediately following completion of the construction or change in the conditions for which they were installed. When the construction is completed or the speed restriction is no longer necessary, the formal speed zone orders shall be revoked.

< End of Section 6C.01 >

Section 6F.104(CA) Road Work/Speed Limit Sign (C17(CA))

Standard:

The Road Work/Speed Limit (C17(CA)) sign shall not be used on State highways.

The C17(CA) sign shall only be used in conjunction with appropriate advance warning signs.

The C17(CA) signs shall be removed promptly when no longer applicable.

Support:

The C17(CA) sign is authorized for use by CVC Section 22362. This section provides authority to post a speed limit of not less than 40 km/h (25 mph) at locations where employees of any contractor, or of the agency in charge of the job, are engaged in work upon the roadway.

Posting unrealistically low speed limits will result in loss of sign credibility and a high violation rate.

Guidance:

Before using a C17(CA) sign, work zone conditions should be analyzed to determine what maximum speed limit would be appropriate for that particular location.

The C17(CA) sign should be placed within 120 m (400 ft) of the zone where workers are on the roadway or so nearly adjacent as to be endangered by traffic.

Option:

The C17(CA) sign may be provided by the agency having jurisdiction over the street or road.

Option:

A WORK ZONE (G20-5aP) plaque may be mounted above a Speed Limit sign to emphasize that a reduced speed limit is in effect within a TTC zone. An END WORK ZONE SPEED LIMIT (R2-12) sign (see Figure 6F-3) may be installed at the downstream end of the reduced speed limit zone.

Guidance:

The C17(CA) or R2-1 with G20-5aP should be posted a minimum distance of 120 m (400 ft) in advance of where, and when workers are present; and the Speed Reduction (W3-5) sign or Speed Zone Ahead (R2-4(CA)) sign informs road users of the reduced speed limit TTC zone.

Existing CA MUTCD Figure 6F-101 portion is shown below for reference to the C17(CA) sign:

Figure 6F-101 (CA). California Temporary Traffic Control Signs (Sheet 1 of 2)

C9A (CA) C12 (CA) C17 (CA) (Front) C17 (CA) (Back) C20A (CA)

08-8 Bicycle and Motorcycle Detection at New or Upgraded Signalized Intersections (Formally known as "Traffic Actuated Signals for the Bicycles and Motorcyclists")

Recommendation:
Caltrans requests that the CTCDC recommends adoption of the language below into the CA MUTCD.

Agency Requesting/Sponsoring: Caltrans

Background:

AB 1581 (Fuller) was signed by the Governor on October 8, 2007, and became law on January 1, 2008. The legislation reads as follows:

Assembly Bill No. 1581

CHAPTER 337

An act to add and repeal Section 21450.5 of the Vehicle Code, relating to vehicles.

[Approved by Governor October 8, 2007. Filed with Secretary of State October 8, 2007.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1581, Fuller. Traffic-actuated signals: bicycles: motorcycles.

(1) Existing law provides for official traffic control devices.

This bill would include as an official traffic control device a traffic-actuated signal that displays one or more of its indications in response to the presence of traffic detected by mechanical, visual, electrical, or other means. Upon the first placement of a traffic-actuated signal or replacement of the loop detector of a traffic-actuated signal, the signal would have to be installed and maintained, to the extent feasible and in conformance with professional engineering practices, so as to detect lawful bicycle or motorcycle traffic on the roadway. Cities and counties would not be required to comply with those requirements until the Department of Transportation has established uniform standards, specifications, and guidelines for the detection of bicycles and motorcycles by traffic-actuated signals and related signal timing. The Commission on State Mandates would be required to consult with the Department of Transportation regarding mandate claims relating to these provisions. This bill would provide that its provisions would remain in effect until January 1, 2018, and would be repealed on that date. By imposing new duties on local government, this bill would impose a state-mandated local program upon local governments.

(2) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature hereby finds and declares the following:

(1) Bicyclists and motorcyclists are legitimate users of roadways in California.

(2) Traffic-actuated signals that do not detect bicycle or motorcycle traffic pose a danger to law-abiding bicyclists and motorcyclists.

(b) It is the intent of the Legislature in enacting this act to better protect law-abiding bicyclists and motorcyclists.

SEC. 2. Section 21450.5 is added to the Vehicle Code, to read:

21450.5. (a) A traffic-actuated signal is an official traffic control signal, as specified in Section 445, that displays one or more of its indications in response to the presence of traffic detected by mechanical, visual, electrical, or other means.

(b) Upon the first placement of a traffic-actuated signal or replacement of the loop detector of a traffic-actuated signal, the traffic-actuated signal shall, to the extent feasible and in conformance with professional traffic engineering practice, be installed and maintained so as to detect lawful bicycle or motorcycle traffic on the roadway.

(c) Cities, counties, and cities and counties shall not be required to comply with the provisions contained in subdivision (b) until the Department of Transportation, in consultation with these entities, has established uniform standards, specifications, and guidelines for the detection of bicycles and motorcycles by traffic-actuated signals and related signal timing.

(d) This section shall remain in effect only until January 1, 2018, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2018, deletes or extends that date.

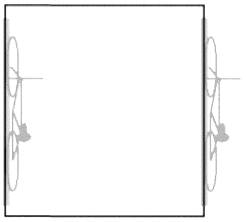
SEC. 3. The Commission on State Mandates shall consult with the Department of Transportation when it develops parameters and guidelines for any mandate claim arising from the enactment of these provisions to ensure that eligible reimbursement is limited solely to the incremental costs of installing sensor wiring that can detect bicycle or motorcycle traffic.

SEC. 4. If the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code.

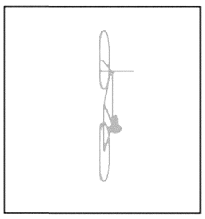
At its January 31, 2008, meeting, the CTCDC requested that Caltrans form an AB 1581 Subcommittee to advise the CTCDC on developing uniform standards, specifications and guidelines for the detection of bicycles and motorcycles by traffic-actuated signals and related signal timing. The members of the AB1581 Subcommittee are:

Ahmad Rastegarpour, Chair	Caltrans
Kai Leung	Caltrans
Ken McGuire	Caltrans
Richard Haggstrom	Caltrans
Damon Curtis	SFMTA
David Roseman	City of Long Beach
Sean Skehan	LADOT
Robert Shanteau	Bicyclist representative
James Lombardo	Motorcyclist representative

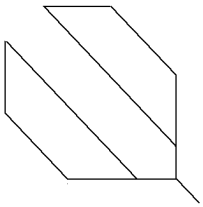
The AB 1581 Subcommittee met on March 4, April 2, July 9 and September 25. It found that motorcycles are difficult to detect because of their small size and that bicycles are often not detected at all because most loops are designed to detect horizontal sheets of metal, such as the bottom of a car or truck, while the rims on bicycle wheels, although metal, are vertical. For instance, the common Type A loop can only detect a bicycle that is located over the loop conductors, as shown in this figure:



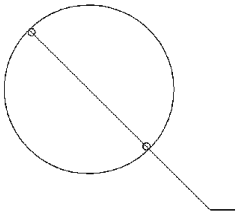
But a bicycle cannot be detected in the center of a Type A loop, as shown here:



To detect a bicycle across its entire width, an inductive loop needs to be a diagonal quadrupole, examples of which are shown here, including a Caltrans Type D and a quadracircle loop:



Type D loop



Quadracircle

The Type D loop was introduced into the Caltrans Standard Plans in the 1980's but deployment has been limited. Winding and sawcut details are shown in Caltrans Standard Plan ES-5B.

The quadracircle was invented in about 1990 in Palo Alto and several local agencies in California have reported success using it, although Caltrans has not experimented with it. Winding and sawcut details are shown in Cupertino's Standard Detail 5-19.

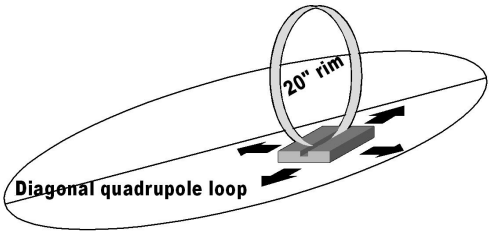
Even if the loop is not a diagonal quadrupole, a bicyclist who knows to stop on top of the conductors may still be detected. But many loops are covered by the final lift of pavement. The CA MUTCD provides for a Bicycle Detector Symbol, shown at right, that can be placed over the conductors of a buried loop to show bicyclists where to stop.

Limit line loops are normally 6' wide by at least 6' long and centered in the lane, or about 3' from the left lane line of a wide right lane. A limit line loop, then, may be some distance from the right hand curb or edge of pavement. CVC Section 21202 requires a bicyclist traveling “at a speed less than the normal speed of traffic” to ride “as close as practicable to the right-hand curb or edge of the roadway” but gives an exception when the bicyclist is “approaching a place where a right turn is authorized.” This exception was intended to provide the bicyclist the flexibility to avoid having to stop against the right hand curb or edge of the road where a potential “right hook” conflict would be created with a right turning motorist. By stopping in the center of the travel lane, a bicyclist is in a position to be seen by following motorists while not creating a conflict with right turning drivers.

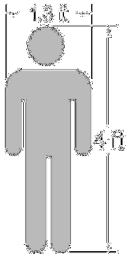
The AB 1581 Subcommittee recommends that all new limit line detectors shall provide an approximate 6'x6' Limit Line Detection Zone, and if more than 50% have been or are being replaced, then the entire intersection should be upgraded to detect bicycles. Although the Subcommittee established this performance standard based on its members' knowledge that inductive loops can meet it, the standard can potentially be met by other detection technologies, including video detection. Therefore the AB 1581 Subcommittee recommends that the performance standard be made technology-independent in order to accommodate video detection as well as future detection technologies.

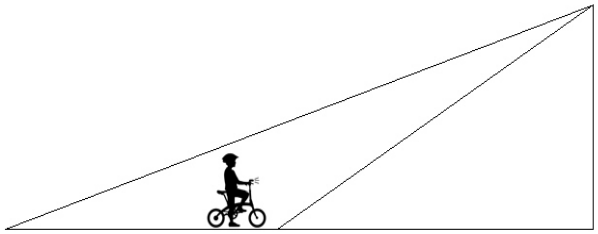
The next step was for the Subcommittee to determine the bicycle-rider combination that would need to be detected. For an inductive loop, the limiting factor is the diameter and material of the bicycle's rims. Since loops are simply metal detectors and most modern rims are made of aluminum, rim material is usually not an issue.

For the reference bicycle the Subcommittee selected an adult bicycle with the smallest wheels, such as the folding bicycle shown at near right. The reason a folding bicycle was selected was that its small rims are the most difficult for an inductive loop to detect. This bicycle has 16" aluminum rims, an aluminum frame, and stainless steel spokes. Subject to further testing and verification, a scrap 20" BMX rim mounted vertically in a piece of wood, as shown at far right, might be used for testing.

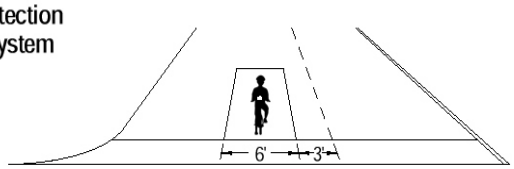


For a video detection system (VDS), the limiting factors are the profile of the rider during the day and the presence of a headlight at night. For the reference rider the Subcommittee recommends a person the size of a middle school student, or about 4' tall and weighing about 90 lb. Again, subject to further verification, a plywood cutout of a standing person about 4' tall and 1.3' wide, as shown at right, might be used for testing.





Video Detection System



Currently, if lighting conditions provide enough contrast for a VDS to detect an automobile, then a motorcyclist or bicyclist can also be detected. In fog or other low contrast conditions, a VDS puts out a constant call to the signal controller unit, which in turn goes into a predetermined fixed time program.

The Subcommittee proposes that the R62(CA) sign and its pushbutton be removed from Figure 4D-111(CA) and that pushbuttons be allowed for bicycle detection only if the approach is not a street or highway, such as where a driveway, shared-use path or bike path forms one or more legs of a signalized intersection, or if it is desired to supplement a Limit Line Detection Zone on a vehicular approach. Guidelines for use of the R62C (CA) sign are in Section 9B.10 of the CA MUTCD. Definitions for "street" and "highway" are in Section 1A.13 of the CA MUTCD:

R62C (CA)

32. Highway - a general term for denoting a public way for purposes of travel by vehicular travel, including the entire area within the right-of-way.

84. Street - see Highway.

The AB 1581 Subcommittee believes that if a bicycle is detected in a Limit Line Detection Zone, then a motorcycle will also be detected. Therefore the language below addresses the detection of both motorcycles and bicycles.

PROPOSAL:

Following are the AB 1581 Subcommittee's proposed changes to the CA MUTCD:

Section 4A.02 Definitions Relating to Highway Traffic Signals

15. Detector – a device used for determining the presence or passage of vehicles (including motorcycles), bicycles or pedestrians.

50A. Reference Bicycle-Rider – a minimum 4' tall person, weighing minimum 90 lb, riding on an unmodified minimum 16" wheels bicycle with non-ferromagnetic frame, aluminum rims, stainless steel spokes, and head light.

29A. Limit Line Detection Zone – an approximate 6'x6'area immediately behind the limit line, either centered in a normal width lane or approximately 3' from the left lane line if a right lane is more than 12' wide.

~~Section 4D.105(CA) Bicycle Detectors~~

~~Option~~:

~~Bicycle detectors may be required at traffic-actuated signal installations.~~

~~The loop detector logo shown on Department of Transportation's Standard Plan A24C may be used to show a bicyclist where to stop in a bike lane or traffic lane to be detected.~~

~~Support:~~

~~See Figure 4D-111(CA) for suggested locations of bicycle detectors and Department of Transportation's Standard Plans for typical bike lane pavement markings.~~

~~Efforts need to be made to ensure that signal detection devices are capable of detecting a bicycle. Detectors for traffic-actuated signals need to be located in the bicyclist's expected path, including left-turn lanes and shoulders. Marking the road surface to indicate the optimum location for bicycle detection is helpful to the bicyclist. Video detection is an effective alternate technique to loop detection.~~

Section 4D.105(CA) Bicycle/Motorcycle Detection

Standard:

All new limit line detector installations and modifications to the existing limit line detection on a street or highway (see Section 1A.13 for definitions) shall provide a Limit Line Detection Zone in which the Reference Bicycle-rider is detected. Refer to CVC 21450.5.

At new signalized intersections, or when the advance loops are being replaced, phases with advance detection only shall be put on permanent recall.

Option:

The detection zone in a bike lane may be narrower than 6'.

A Bicycle Detector Symbol may be used (See Section 9C.05).

A bicycle pushbutton may be used on a signalized intersection approach that is not a street or highway, such as a private driveway, shared-use path or bike path.

Bicycle pushbuttons may also be used to supplement Limit Line Detection Zones on a signalized intersection approach that is a street or highway.

Guidance:

The Limit Line Detection Zone is not required for phases that are on permanent recall or fixed time operation.

If more than 50% of the limit line detectors have been or need to be replaced at a signalized intersection, then the entire intersection should be upgraded so that every lane has a Limit Line Detection Zone.

The Reference Bicycle-Rider or the equivalent should be used to confirm bicycle detection under the following situations:

1. A new detection system has been installed
2. The detection configuration has been modified
3. A complaint has been made about lack of detection by bicyclists/motorcyclists

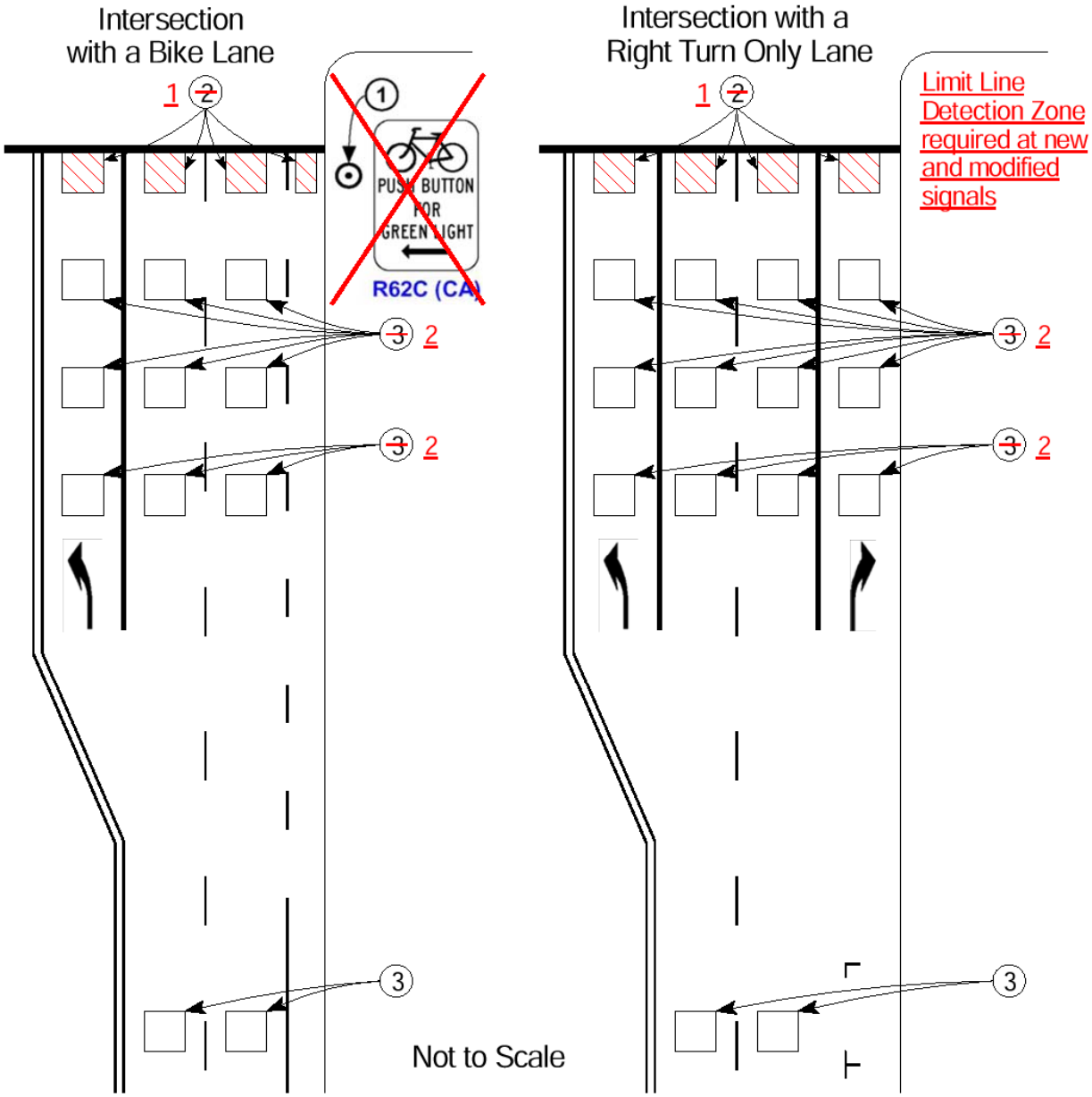
Support:

See Figure 4D-111(CA) for typical detector locations.

CVC Section 21202 requires bicyclists traveling "at a speed less than the normal speed of traffic" to ride "as close as practicable to the right-hand curb or edge of the roadway" with exceptions, including when the bicyclist is "approaching a place where a right turn is authorized." This exception was intended to provide the bicyclist the flexibility to avoid having to stop against the right hand curb or edge of the road where a potential conflict would be created with a right turning motorist.

Amend Figure 4D-111(CA) as shown on the following page.

Typical
Figure 4D-111 (CA) ~~Bicycle~~ Detection Systems



~~1. Bike/Push Button for Green Light (R62C (CA)) Sign or a Type D Loop Detector may be used to activate a traffic signal. A push button should be located so it is convenient to use by bicyclists.~~

1 ~~2~~. Typical ~~Type D Loop Detector Locations~~. limit line detection locations (diagonal quadrupole, video detection, etc.) See Section 4D.105 (CA).

2 3. Typical ~~Loop Detector locations. See Section 4D.105 (CA).~~ front detection locations (Type 3A, Type C, video detection, etc.) See Section 4D.103 (CA).

~~4. See Standard Plan A24C for Bicycle Loop Detector pavement marking details.~~

3. Typical advance detector locations.

08-17 Proposal to adopt California Alternative Fuel signs as optional signs (formally known as "BIODIESEL" plaque and the "Ethanol 85 (E85)" signs)

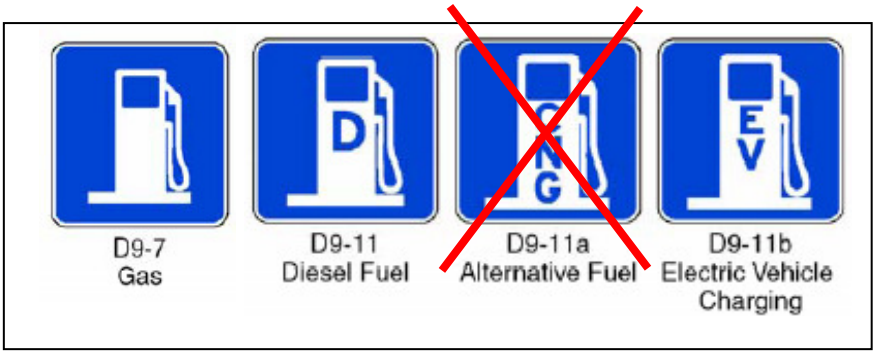
RECOMMENDATION: Caltrans requests that the Committee recommend adoption of the California **Alternative Fuels** symbol sign, a variable height A**lternative Fuels** supplemental plaque, and sign specifications and policy for individual alternative fuel symbol signs and supplemental plaques.

AGENCY MAKING REQUEST/SPONSOR: California Department of Transportation (Caltrans)

BACKGROUND:

During the September 17th and 18th, 2008 CTCDC meeting, the Committee suggested that Caltrans develop a generic policy by using a gas pump as a symbol with a supplemental plaque. The supplemental plaque could be used to list different types of alternative fuels.

There are existing alternative fuel signs in the CA MUTCD shown in Figure 2D-11 and 2D-11(CA). The proposed BIODIESEL (BD), ETHANOL-E85 and HYDROGEN (H) signs are consistent with current signs. The existing federal and California signs for a variety of fuels are shown below:



G66-11 (CA)

G66-11A (CA)

G66-12A (CA)

G66-22A (CA)

G66-22B (CA)

PROPOSAL:

Amended (in red) Section 2D.45 General Services Signs (D9 Series)

Fuel (Gasoline, ~~and~~ Diesel and Alternative Fuels) Signs (D9-7, D9-11, D9-11a(CA), G66-11(CA), G66-11A(CA), G66-12A(CA), G66-13A(CA), G66-13B(CA), G66-22A(CA), G66-22B(CA), G81-52(CA), G66-13C (CA), G66-13D(CA), G66-13E(CA), G66-13F(CA)), and G66-13G(CA))

Standard:

1. **The maximum distance to a service station shall be 0.8 km (0.5 mi) and have reasonably direct access from and return to the highway.**

Option:

2. Service may be signed to in bypassed communities, if the distance to the service is less than the distance to the next service on the through route.

Standard:

3. **Fuel, oil, compressed air, air gauge, radiator water, drinking water, telephone and restrooms shall be available during all service hours.**

Guidance:

4. The station should be open at least 12 hours a day.

Standard:

5. **Where gasoline is available, the Gas (D9-7) symbol sign shall be used.**
6. **Where gasoline and diesel is available, the Diesel Fuel (D9-11) symbol sign (with a superimposed "D") shall be used.**

Option:

7. The DIESEL (G66-12A(CA)) plaque may be used in addition to other appropriate service signs. Where neat (B100) BIODIESEL (BD) fuel is available, the BIODIESEL Fuel (G66-13A(CA)) symbol sign and BIODIESEL (G66-13B(CA)) supplemental plaque may be used in addition to the other appropriate signs.
8. ~~7.~~ Where liquefied petroleum gas is available; a LP GAS (G81-52(CA)) plaque may be used below either D9-7 or D9-11 sign.
9. ~~8.~~ Where methanol fuel is available, the Methanol Fuel (G66-11(CA)) symbol sign and METHANOL (G66-11A(CA)) plaque may be used in addition to other appropriate service signs.
10. ~~9.~~ The Compressed Natural Gas (G66-22A(CA)) sign may be used for Compressed Natural Gas Refueling Stations within 4.8 km (3 mi) of a State highway and be available to the public at least 16 hours a day.
11. ~~10.~~ The Liquefied Natural Gas (G66-22B(CA)) sign may be used for Liquefied Natural Gas Refueling Stations within 4.8 km (3 mi) of a State highway and be available to the public at least 16 hours a day.
12. Where Ethanol-E85 fuel is available, the Ethanol-E85 Fuel (G66-13C(CA)) symbol sign and ETHANOL (G66-13D(CA)) supplemental plaque may be used in addition to the other appropriate signs.
13. Where HYDROGEN (H) fuel is available, the HYDROGEN Fuel (G66-13E(CA)) symbol sign and HYDROGEN (G66-13F(CA)) supplemental plaque may be used in addition to the other appropriate signs.
14. Where only alternative fuels are available and gasoline and diesel fuels are not, the Alternative-ALT Fuels (D9-11a (CA)) symbol sign (with superimposed "ALT") may be used with an Alternative Fuels (G66-13G(CA)) supplemental plaque mounted below.
15. Beneath the standard fuel symbol sign, per #5 or #6 above, or, the Alternative-ALT Fuels (D9-11a (CA)) symbol sign, the Alternative Fuels (G66-13G(CA)) supplemental plaque may list alternative fuels available with one fuel name or abbreviation per line. This supplemental plaque height may vary from 2 to 6 lines of text; and, may intentionally leave space(s) for an alternate fuel legend overlay(s) to be added at a future time.

Standard:

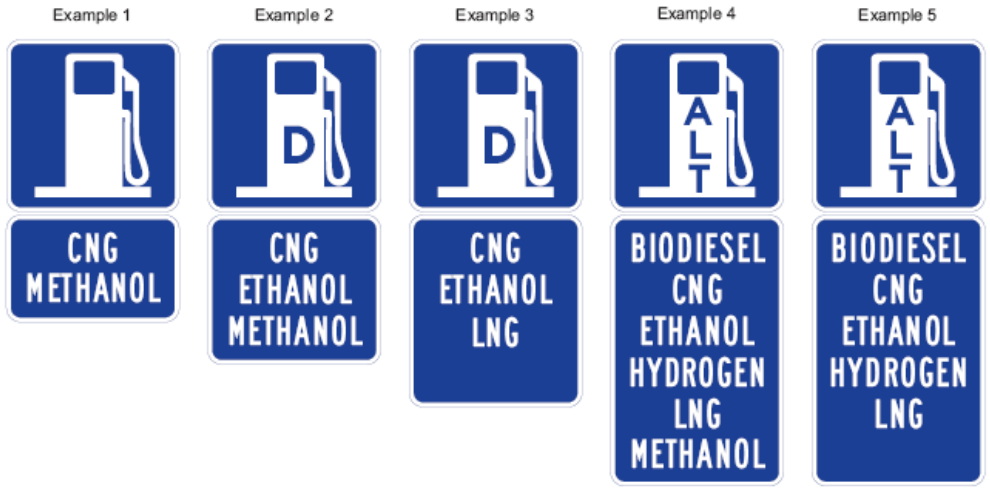
16. **11. Follow-up signing, if necessary, shall be placed by local agencies before signs are placed on the State highway.**

Support:

The Department of Transportation may develop signs for future requests for alternative fuel signs, then share the signs with the California Traffic Control Devices Committee (CTCDC) in a subsequent meeting for informational purposes.

The following Example is for Demonstration:

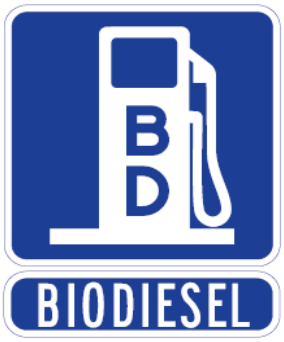
Examples of Proposed Signs



Supplemental plaque height may vary.
2 lines of text minimum.
6 lines of text maximum.
May leave blank spaces for future available alternative fuels.

All proposed new signs are show on the following page:

Proposed Signs:



G66-13A (CA) symbol sign
with G66-13B (CA) supplemental plaque

G66-13C (CA) symbol sign
with G66-13D (CA) supplemental plaque

G66-13E (CA) symbol sign
with G66-13F (CA) supplemental plaque

D9-11a (CA) symbol sign
with G66-13G (CA) supplemental plaque

Attachments: Correspondences between City of Tulare and the FHWA

U.S. Department of Transportation
Federal Highway Administration

1200 New Jersey Avenue, SE.
Washington, DC 20590

February 29, 2008

In Reply Refer To: HOTO-1

Lewis R. Nelson, P.E.
Public Works Director
City of Tulare
3981 South K Street
Tulare, CA 93274

Dear Mr. Nelson:

Thank you for your February 15 letter requesting a change to the *Manual on Uniform Traffic Control Devices* (MUTCD) in the area of General Service signs. Specifically, you requested that a symbol sign for ethanol fuel be added to Figure 2D-11, "General Service Signs," of the MUTCD.

Section 2D.45 of the MUTCD contains the provisions for General Service signs on Conventional roadways. This Section allows the option of using either words or symbols to display the available services. Figure 2D-11 shows designs for typical General Service symbols, and includes a symbol sign for Alternative Fuel (D9-11a). The example illustrated in this Figure incorporates the abbreviation "CNG" for compressed natural gas.

In addition, Section 2E.51 contains the provisions for General Service signs when used in Freeway and Expressway applications. This Section allows the option of either substituting the Alternative Fuel General Service symbol for the Gas General Service symbol (D9-7), or appending such a word message sign to the Gas General Service sign.

Because the MUTCD already contains provisions by which alternative fuels can be displayed on General Service signs, the example of the sign that you provided, which substitutes the abbreviation "E85" for "CNG" on the Alternative Fuel symbol sign illustrated in Figure 2D-11, is in conformance with the provisions of the MUTCD.

As you might be aware, a Notice of Proposed Amendments (NPA) to the MUTCD was issued January 2 and is open for public comment until July 31. Comments on this NPA must be on official record in the public docket in order to be considered as part of the rulemaking process. We encourage you to submit comments to the docket if there are specific changes that you recommend for consideration in the next edition of the MUTCD. Comments may be submitted at **www.regulations.gov** by referencing Docket No. FHWA-2007-28977.

AMERICAN ECONOMY

We appreciate the opportunity to provide this information to you and hope you find it helpful. If we can be of further assistance on this matter, please contact Mr. Kevin Sylvester at 202-366-2161.

Sincerely yours,

Robert Arnold
Director, Office of Transportation Operations

cc: Mr. Robert Copp

City of Tulare
Agri-Center Of The World

Public Works

February 15, 2008

Federal Highway Administration
Director of the Office of Transportation Operations (HOTO)

Regarding: Manual on Uniform Traffic Control Devices
Figure 2D-11 General Service Signs
Addition of E85 Ethanol Fuel Sign

The President and Governors of many states, including California, are promoting the growth of use and availability of E85 ethanol vehicle fuel. The city of Tulare recently received Department of Energy and California Air Resources Board funding to build an E85 station. The General Service Signs (photo of off freeway sign attached) we made by the City of Tulare and provided to California Department of Transportation local district 6 personnel for installation some months ago. When the E85 station opened this week, we called Caltrans and asked them to install our signs. Their response was that this sign does not appear in the Manual on Uniform Traffic Control Devices (MUTCD). I have attached a link to the referenced page in the MUTCD.

There are over 1,700 E85 stations operating in America. The Tulare station is the third in California and the first in the San Joaquin Valley. Caltrans has a process for reviewing and approving signs that are not in MUTCD, but the process is time-consuming. California has recently granted $25 million for the establishment of new E85 stations, and many will be located along State or Federal highways.

It is important to sign the exits where these stations are located so that drivers of flexfuel vehicles are able to locate this "home grown" fuel. The city of Tulare requests that the MUTCD be modified by addition of a General Services Sign for E85.

Please call me at (559) 684-4318, or e-mail at lnelson@ci.tulare.ca.us if you have any questions.

Sincerely,

Lewis R. Nelson

Lewis R. Nelson, P.E.
Public Works Director

3981 South "K" Street • Tulare, California 93274 • 559.684.4318 • Fax 559.685.2378
AN EQUAL OPPORTUNITY EMPLOYER

09-1 Proposal to amend policies for Unincorporated Community, City Limit and County Line Signs (Formally the Item was listed as 08-9)

RECOMMENDATION: Caltrans requests that the Committee recommend adoption of the amended policies for the Unincorporated Community, City Limit and County Line Signs into the California MUTCD.

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND: Caltrans had received an inquiry from an individual regarding the location of City Limit/County Line signs. The current policies for placement of City Limit and County Line signs shown in the California MUTCD Section 2D.48 are different. The policy for City Limit (and Unincorporated Community) signs is a Standard ("shall") while the County Line sign is a Guidance ("should"). For consistency and to remove the ambiguity, Caltrans proposes to make both policies a Guidance ("should") for the actual location criteria of these signs.

In previous meetings, the Committee recommend that Caltrans bring revised policy with "should" conditions that city limit signs should be placed as close to the limit line as practical language.

The Committee also suggested that Caltrans verify that this proposal was not in conflict with the Streets & Highways (S&H) Code 101.1. Upon perusal, it is Caltrans opinion that as long as the requirement (Standard – "shall") for installing the Unincorporated Community and City Limit signs is retained (as a Standard – "shall"), the actual physical location of where the signs are placed can be a Guidance ("should") without conflicting with the S&H Code 101.1.

STREETS & HIGHWAYS SECTION 101.1:

(a) The department may place the state's 9-1-1 emergency telephone number on road signs on all state highways at state entry points and county, city, and town limit entry points. The department shall place and maintain, or cause to be placed and maintained, on all state highways at the city limit of each incorporated city and at the limits of each unincorporated town, as determined by the department, a uniform road sign which sets forth the name of the city or town, its population, and its altitude, as determined by the department. Where the limits of a county, city, or town intersect a state highway at more than two points, the department, in its discretion, need erect the signs only at each of the two outermost points on the state highway where the intersection occurs.

(b) The department shall adopt specifications to provide for uniform signs of permanent character setting forth the information required in subdivision (a). The emergency telephone numbers shall be added to the road signs in subdivision (a) only when the signs are changed for other purposes.

PROPOSAL:

Section 2D.48 General Information Signs (I Series)

Unincorporated Community and City Limit (CA Code G9-2 and G9-5) Signs

Standard:

The Unincorporated Community (G9-2(CA)) and City Limit (G9-5(CA)) signs shall be used to mark the limits of cities and to identify unincorporated towns. Refer to S&H Section 101.1. ~~The G9-5 (CA Code) sign shall be placed on the right, at the outer city limits of incorporated cities, facing traffic entering the named city. The G9-2(CA) sign shall be used similarly for unincorporated towns.~~

Guidance:

The G9-2(CA) signs should be placed on the right, as close as practical to the outer town limits of unincorporated towns, facing traffic entering the named town.

The G9-5(CA) sign should be placed on the right, as close as practical to the outer city limits of incorporated cities, facing traffic entering the named city.

Option:

The population may be obtained from:

A. Federal census
B. California Dept. of Finance
C. County Board of Supervisors
D. County Planning Commission

The elevation shown may be that of the courthouse, post office, railroad station, or benchmark in the central district of the city.

Standard:

See Section 101.1 of the Streets and Highways Code, which makes these changes mandatory, and Section 101.2 and 101.4, which provides that the Department of Transportation, under certain conditions, shall replace any city limit signs.

Guidance:

If a city or community desires to install a distinctive type city limits or "Welcome" sign on conventional highways at its city limits in place of the standard G9-5(CA) sign, the following criteria should be followed:

Standard:

1. **The signs shall be installed by local authorities at no expense to the State, and an approved encroachment permit will be obtained prior to installation. They shall be maintained by the permittee to the satisfaction of the permitter.**
2. **Such signs shall be installed in accordance with current Department practices.**
3. **Signs shall be of reasonable size and proportional to other guide signs in the area.**
4. **Signs shall be positioned so they do not obstruct the view of official traffic control devices.**
5. **No moving or flashing displays or advertising of any kind will be permitted.**
6. **No sign shall encroach over the highway.**

Option:

7. Political jurisdiction logos may be displayed on the city limit signs, but the predominant characteristics of the sign will be white legend on a green rectangular shaped background. Distinctive type city limit signs not conforming to the above may remain in place until normal replacement is required.

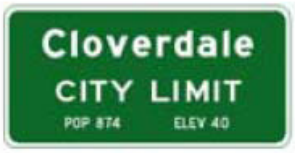
County Line (G10(CA)) Sign

Guidance:

The County Line (G10(CA)) sign should be used at the point where the county boundary line crosses the State highway. ~~The G10(CA) sign should be placed on the right facing traffic entering the named county.~~

The G10(CA) sign should be placed on the right, as close as practical to the outer limits of the county, facing traffic entering the named county.

G9-2 (CA)



G9-5 (CA)

G10 (CA)

09-2 Amendment to Section 2A.22 Maintenance of the CA MUTCD

RECOMMENDATION: Caltrans requests the Committee to make recommendation for the adoption of amendment to Section 2A.22 as shown below:

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND: CA MUTCD **Section 2A.22 Maintenance** talks about the proper positioning, maintenance and inspection of the signs for visibility. It also says that the Employees of highway, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, or obscured signs at the first opportunity. However, the policy does not cover "missing" signs. The addition of "missing" is an appropriate amendment.

PROPOSAL:

Section 2A.22 Maintenance (proposed to add word "missing")

Guidance:

All traffic signs should be kept properly positioned, clean, and legible, and should have adequate retroreflectivity. Damaged or deteriorated signs should be replaced.

To assure adequate maintenance, a schedule for inspecting (both day and night), cleaning, and replacing signs should be established. Employees of highway, law enforcement, and other public agencies whose duties require that they travel on the roadways should be encouraged to report any damaged, deteriorated, missing or obscured signs at the first opportunity.

Steps should be taken to see that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign.

A regular schedule of replacement of lighting elements for illuminated signs should be maintained.

09-6 Amendment to Section 6F.63 Type I, II, or III Barricades

Orientation of Barricade Stripes for Temporary Traffic Control

RECOMMENDATION:

Caltrans requests that the Committee recommend retaining the National MUTCD requirement ("shall") for orientation of barricade stripes in the direction road users are to pass instead of the current California MUTCD amendment which makes it a recommendation ("should").

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND:

FHWA had issued a final rule in the Federal Register on 12/14/06 which became effective on 1/16/07 clarifying the term "substantial conformance". It is available at the following web link: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2006_register&docid=fr14de06-6.pdf

FHWA has recently made Caltrans aware that although the May 20, 2004 California Supplement policies were "grandfathered", any subsequent changes to policy be in "substantial conformance" with the National MUTCD. FHWA California Division has determined that Caltrans Traffic Operations Policy Directive (TOPD) 05-06 issued on 3/7/05 which amended the National MUTCD Section 6F.63 standard ("shall") to a guidance ("should") statement is an unacceptable modification.

FHWA's 9/15/06 letter to Caltrans finding the California Supplement (May 20, 2004) to be in substantial conformance with the National MUTCD is available at the following web link: http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/pdf/fhwaconformanceletter.pdf

Excerpts from the Federal Register (12/14/06) final rule on "substantial conformance" follow:

> Where State or other Federal agency MUTCDs or supplements are required, they shall be in substantial conformance with the National MUTCD. Substantial conformance means that the State MUTCD or supplement shall conform as a minimum to the standard statements included in the National MUTCD. The FHWA Division Administrators and Associate Administrator for the Federal Lands Highway Program may grant exceptions in cases where a State MUTCD or supplement cannot conform to standard statements in the National MUTCD because of the requirements of a specific State law that was in effect prior to the effective date of this final rule, provided that the Division Administrator or Associate Administrator determines based on information available and documentation received from the State that the non-conformance does not create a safety concern. The guidance statements contained in the National MUTCD shall also be in the State Manual or supplement unless the reason for not including it is satisfactorily explained based on engineering judgment, specific conflicting State law, or a documented engineering study. The FHWA Division Administrators shall approve the State MUTCDs and supplements that are in substantial conformance with the National MUTCD. The FHWA Associate Administrator of the Federal Lands Highway Program shall approve other Federal land management agencies MUTCDs and supplements that are in substantial conformance with the National MUTCD. The FHWA Division Administrators and the FHWA Associate Administrators for the Federal Lands Highway Program have the flexibility to determine on a case-by-case basis the degree of variation allowed.

PROPOSAL:

Section 6F.63 Type I, II, or III Barricades

CURRENT TEXT:

Standard:

Stripes on barricade rails shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees ~~in the direction road users are to pass~~. Except as noted in the Option, the stripes shall be 150 mm (6 in) wide.

Guidance:

Stripes on barricade rails should slope downward at an angle of 45 degrees in the direction road users are to pass.

PROPOSED TEXT:

Standard:

Stripes on barricade rails shall be alternating orange and white retroreflective stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Except as noted in the Option, the stripes shall be 150 mm (6 in) wide.

09-4 Amendment to Sections 8D.05 and 10D.04 of the CA MUTCD

SPONSOR: Caltrans

AGENCY MAKING REQUEST: California Public Utility Commission (CPUC)

RECOMMENDATION: The CPUC requests that the Committee recommend for the adoption of the amended **Sections 8D.05 and 10D.04** of the CA MUTCD.

BACKGROUND: FHWA recently brought to our attention that the language in Parts 8 and 10 of the September 2006 California Manual on Uniform Traffic Control Devices (CA MUTCD) which FHWA believes may not be in substantial compliance with the national MUTCD. In the Sections discussing Four-Quadrant Gate Systems, it appears that the strike-outs in CA MUTCD may reduce the requirements imposed by the national MUTCD. We propose that the language of concern be restored in the CA MUTCD, with amendments, to address the FHWA concerns.

Please be aware that CPUC General Order 75-D Section 6.6(c) includes the following requirement:

"A vehicle presence detection system shall be installed whenever exit gates are used. The system shall be designed such that if a vehicle is detected between the entrance and exit gates, the exit gate shall remain upright until the vehicle clears the exit gate."

PROPOSAL:

Section 8D.05 <u>Four-Quadrant Gate Systems</u>

Option:

Four-Quadrant Gate systems may be installed to improve safety at highway-rail grade crossings based on an engineering study when less restrictive measures, such as automatic gates and median islands, are not effective.

Standard:

A Four-Quadrant Gate system shall consist of a series of automatic gates used as an adjunct to flashing-light signals to control traffic on all lanes entering and exiting the highway-rail grade crossing.

The Four-Quadrant Gate system shall consist of a drive mechanism and fully retroreflectorized redand white-striped gate arms with lights, and when in the down position the gate arms extend individually across the entrance and exit lanes of highway traffic as shown in Figure 8D-2. Standards contained in Sections 8D.01 through 8D.03 for flashing-light signals shall be followed for signal specifications, location, and clearance distances.

In the normal sequence of operation, unless constant warning time or other advanced system requires otherwise, the flashing-light signals and the lights on the gate arms (in their normal upright positions) shall be activated immediately upon detection of the approaching train. The gate arms for the entrance lanes of traffic shall start their downward motion not less than 3 seconds after the flashing-light signals start to operate and shall reach their horizontal position at least 5 seconds before the arrival of the train. Exit gate arm activation and downward motion shall be based on detection or timing requirements established by an engineering study of the individual site. The gate arms shall remain in the down position as long as the train occupies the highway-rail grade crossing.

When the train clears the highway-rail grade crossing, and if no other train is detected, the gate arms shall ascend to their upright positions, following which the flashing lights and the lights on the gate arms shall cease operation.

Gate arm design, colors, and lighting requirements shall be in accordance with the Standards contained in Section 8D.04.

~~**Except as noted in the Option below, the exit gate arm mechanism shall be designed to fail-safe in the up position.**~~

The exit gate arm mechanism shall be designed to fail-safe in the up position. Refer to CPUC General Order 75, as amended.

Timed Exit Gate Operating Mode shall not be used. Only Dynamic Exit Gate Operating Mode shall be used. Vehicle presence detection devices shall be installed to control exit gate operation based on vehicle presence within the minimum track clearance distance. Refer to CPUC General Order 75, as amended.

At locations where gate arms are offset a sufficient distance for vehicles to drive between the entrance and exit gate arms, median islands shall be installed in accordance with the needs established by an engineering study.

Guidance:

The gate arm should ascend to its upright position in not more than 12 seconds.

Four-Quadrant Gate systems should only be used in locations with constant-warning-time train detection.

~~The operating mode of the exit gates should be determined based upon an engineering study, with input from the affected railroad company.~~

~~If the Timed Exit Gate Operating Mode is used, the engineering study, with input from the affected railroad company, should also determine the Exit Gate Clearance Time (see Section 8A.01).~~

~~If the Dynamic Exit Gate Operating Mode is used, vehicle intrusion detection devices should be installed to control exit gate operation based on vehicle presence within the minimum track clearance distance.~~

~~Regardless of which exit gate operating mode is used~~, The Exit Gate Clearance Time should be considered when determining additional time requirements for the Minimum Warning Time.~~the Exit Gate Clearance Time should be considered when determining additional time requirements for the Minimum Warning Time.~~

~~If a Four-Quadrant Gate system is used at a location that is adjacent to an intersection that could cause vehicles to queue within the minimum track clearance distance, the Dynamic Exit Gate Operating Mode should be used unless an engineering study indicates otherwise.~~

If a Four-Quadrant Gate system is interconnected with a highway traffic signal, backup or standby power should be considered for the highway traffic signal. Also, circuitry should be installed to prevent the highway traffic signal from leaving the track clearance green interval until all of the gates are lowered.

At locations where sufficient space is available, exit gates should be set back from the track a distance that provides a safety zone long enough to accommodate at least one design vehicle between the exit gate and the nearest rail.

Four-Quadrant Gate systems should include remote health (status) monitoring capable of automatically notifying railroad signal maintenance personnel when anomalies have occurred within the system.

Option:

~~Exit gate arms may fail in the down position if the highway-rail grade crossing is equipped with remote health (status) monitoring.~~ **Refer to CPUC General Order 75, as amended.**

Four-Quadrant Gate installations may include median islands between opposing lanes on an approach to a highway-rail grade crossing.

Guidance:

Where sufficient space is available, median islands should be at least 18 m (60 ft) in length.

The same language will be added to the Section 10D.04 of CA MUTCD.

09-5 Amendment to Sections 2B.03 Size of Regulatory Signs and 2C.04 Size of Warning Signs

RECOMMENDATION: Caltrans requests that the Committee recommend retaining the National MUTCD requirement ("shall") for Sections 2B.03 and 2C.04 instead of the current California MUTCD amendment which makes it a recommendation ("should").

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND: In the FHWA CA Division Office Review of the CA MUTCD, Matthew Schmitz noted that "Section 2B.03 Size of Regulatory Signs" in Chap 2B; and, "Section 2C.04 Size of Warning Signs" that had been changed from Standard to Guidance. In both cases, the reason for the amendment to the federal MUTCD language was given as: "The FHWA's Standard Highway Signs (SHS) book is inadequate in its current form and does not provide all the sizes that are either included in Table 2B-1, for Regulatory Signs [or Table 2C-2 for Warning Signs] or are necessary on the various classifications of roadways." This topic was discussed in a telephone conference on December 3, 2008 with Wayne Henley, Devinder Singh, and Don Howe of Caltrans; Matthew Schmitz of FHWA CA Division Office, and Kevin Sylvester of the FHWA MUTCD Team in Washington, DC who has lead responsibility for guide signs and the SHS Book. Participants agreed that the lag between policy in the MUTCD and the follow-up updates to SHS sometimes may create the situation where the two books may not synchronize, exactly; but, this still does not warrant California downgrading MUTCD Standards to Guidance statements when the issue is possible conflicts between two federal documents. Participants in the teleconference agreed that the CA MUTCD could easily be amended to reflect that Sections 2B.03 and 2C.04 that show "Guidance" language edits can be deleted to re-establish standard statements without any adverse impacts to California sign policy(-ies). The SHS was last updated in 2002; and, with the recent Notice for Proposed Amendment to the MUTCD, and pending update of the MUTCD in 2009, there will be a number of updates required to the SHS to synchronize the two federal documents.. To ensure that the CA MUTCD is in compliance with the National MUTCD the requirement (shall) be retained instead of (should) in both sections.

PROPOSAL:

Current policy in the CA MUTCD:

Section 2B.03 Size of Regulatory Signs

Standard:

The sizes for regulatory signs ~~shall~~ should be as shown in Table 2B-1.

Proposed Policy:

Section 2B.03 Size of Regulatory Signs

Standard:

The sizes for regulatory signs shall ~~should~~ be as shown in Table 2B-1.

Current policy in the CA MUTCD:

Section 2C.04 Size of Warning Signs

Standard:

The sizes for warning signs ~~shall~~ should be as shown in Table 2C-2.

Proposed Policy:

Section 2C.04 Size of Warning Signs

Standard:

The sizes for warning signs shall ~~should~~ be as shown in Table 2C-2.

ATTACHMENT: (The following are the complete text for both Sections of the CA MUTCD):

Section 2B.03 Size of Regulatory Signs

Standard:

The sizes for regulatory signs ~~shall~~ should be as shown in Table 2B-1.

Guidance:

The Freeway and Expressway sizes should be used for higher-speed applications to provide larger signs for increased visibility and recognition.

Option:

The Minimum size may be used on low-speed roadways where the reduced legend size would be adequate for the regulation or where physical conditions preclude the use of the other sizes.

The Oversized size may be used for those special applications where speed, volume, or other factors result in conditions where increased emphasis, improved recognition, or increased legibility would be desirable.

Signs larger than those shown in Table 2B-1 may be used (see Section 2A.12).

Section 2C.04 Size of Warning Signs

Standard:

The sizes for warning signs ~~shall~~ should be as shown in Table 2C-2.

Guidance:

The Conventional Road size should be used on conventional roads.

The Freeway and Expressway sizes should be used for higher-speed applications to provide larger signs for increased visibility and recognition.

Option:

The Minimum size may be used on low-speed roadways where the reduced legend size would be adequate for the warning or where physical conditions preclude the use of the other sizes.

Oversized signs and larger sizes may be used for those special applications where speed, volume, or other factors result in conditions where increased emphasis, improved recognition, or increased legibility would be desirable.

Standard:

The minimum size for supplemental warning plaques shall be as shown in Table 2C-3.

Option:

Signs larger than those shown in Tables 2C-2 and 2C-3 may be used (see Section 2A.12).

09-6 Amendment to CA MUTCD Section 2D.45 General Service Signs (D9 Series)

RECOMMENDATION: Caltrans requests that the Committee recommend for the adoption of the amendment to Section 2D.45 as proposed.

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND: The current wording is ambiguous. The question is, before Caltrans approves STAA access on a State ramp or intersection leading to a local STAA route (also called a "Terminal Access" route), must Caltrans also evaluate and approve the local STAA access routes? Or is the local government solely responsible for determining STAA access on their local roads? The practice has always been that the local government is responsible for roads under their jurisdiction. Caltrans does not have the resources to evaluate each proposed local STAA route.

A Caltrans district recently evaluated a county intersection after the county engineers had already approved the intersection. Caltrans disagreed with the county's evaluation and refused to approve the State ramp. The county threatened litigation. The situation consumed a great deal of staff time and effort for both Caltrans and the county. Caltrans Legal staff agreed that the present wording in the CA MUTCD is ambiguous. The proposed wording should clarify the long-term practice, and should help avoid future conflicts between Caltrans and local governments over STAA route jurisdictional issues.

PRPOSAL:

STAA Truck Terminal Access (G66-56(CA)) Sign (Page 2D-31 of CA MUTCD)

…

STAA Truck Terminal Access (G66-56(CA)) signs shall be provided as follows:

1. …

2. On Local Highways:

- Signing of egress from a State Terminal Access route to a local Terminal Access route shall be done only if requested in writing by the local jurisdiction, the local jurisdiction has informed the Department in writing that the local roads and intersections on the proposed local Terminal Access route meet all geometric criteria for STAA trucks, and ~~the entire segment including~~ the State highway ramp or intersection meets all geometric criteria for STAA trucks.

…

Local agencies should furnish Terminal Access route information to the Office of Truck Services for web publication. ~~An~~ Some example~~s is~~ are available on the ~~Internet at the~~ following ~~web site~~ website: ~~http://www.dot.ca.gov/hq/traffops/trucks/trucksize/truckmap/county-sac.pdf.~~ http://www.dot.ca.gov/hq/traffops/trucks/truckmap/local-truck-routes.htm.

09-7 Frequent Stopping & Backing – Stay Back 100 ft Sign

Recommendation:

Caltrans request that the Committee recommend adoption of the CAUTION – FREQUENT STOPPING AND BACKING STAY BACK 100 FEET sign for use on work vehicles.

Agency Making Request/Sponsor: Caltrans

Background:

Caltrans District 3 is requesting the use of CAUTION – FREQUENT STOPPING AND BACKING STAY BACK 100 FEET or similar wording sign for use on work vehicles such as snow graders to improve road user and worker safety.

Proposal:

6F.109(CA) CAUTION – FREQUENT STOPPING AND BACKING STAY BACK 100 FEET Sign
Option:

For mobile operations, CAUTION – FREQUENT STOPPING AND BACKING STAY BACK 100 FEET Sign may be mounted on a work vehicle to warn road users and workers of the frequent stopping and backing maneuvers made by the vehicle.

09-8 Defining Speed Category for Sign Spacing Table 6C-1

RECOMMENDATION:

Mr. David Royer, Consulting Traffic & Highway Engineer requests that the Committee recommend and define the speed category per proposal shown below for the roadway type listed in California MUTCD Table 6C-1 titled "Suggested Advance Warning Sign Spacing".

AGENCY MAKING REQUEST/SPONSOR: Caltrans

BACKGROUND:

Mr. David Royer states that in teaching the University of California's Work Zone Safety Course, he has found some operational problems with Part 6 of the California MUTCD.

California MUTCD Table 6C-1 (shown on next page) note (asterisk) indicates that speed category to be determined by highway agency. In Mr. Royer's opinion, he has never found an agency that has established their speed category and there is no way that a road or utility worker in the field would know what speed category was established by their agency.

Mr. Royer recommends the following criteria:

Urban (low speed)	25 and 30 mph
Urban (high speed)	35 and 40 mph
Rural	45 and 50 mph
Expressway/Freeway	55 mph and above

OR

Adopt the simple WATCH manual criteria which states that the "sign spacing equals the Merging Taper Length" (simple and effective method that has been used in California for over 30 years).

For comparison & discussion purpose, the Traffic Manual Table 5-3 showing speeds and California MUTCD Table 6C-1 follow:

Table 5-3
Suggested Advance Warning Sign Spacing

Road Type	Distance Between Signs in Meters (Feet)		
	A	B	C
Urban-40 km/h (25 mph) or less	60 (200)	60 (200)	60 (200)
Urban-50 km/h (30 mph) or more	100 (350)	100 (350)	100 (350)
Rural	150 (500)	150 (500)	150 (500)
Expressway/Freeway	300 (1000)	300 (1000)	300 (1000)

Note: These are suggested distances for Advance Warning Signs, adequate sight distances and proximity to other roadway features may dictate the need for adjustments when placed.

PROPOSAL:

The proposal amends California MUTCD Table 6C-1 which is a Guidance ("should") topic per Sections 6C.04, 6F.16 & 6F.55 references.

Table 6C-1. Suggested Advance Warning Sign Spacing

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)* 25 & 30 mph	30 (100)	30 (100)	30 (100)
Urban (high speed)* 35 & 40 mph	100 (350)	100 (350)	100 (350)
Rural 45 & 50 mph	150 (500)	150 (500)	150 (500)
Expressway / Freeway 50 mph & above	300 (1,000)	450 (1,500)	800 (2,640)

* Speed category to be determined by highway agency

** Distances are shown in meters (feet). The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)

6 Request for Experimentation:

09-10 Request to Experiment with Steady Red Stop Line Light

CITY OF LOS ANGELES
CALIFORNIA

RITA ROBINSON
GENERAL MANAGER

ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF TRANSPORTATION
100 S. Main St., 10th Floor
LOS ANGELES, CA 90012
(213) 972-8470
FAX (213) 972-8410

September 4, 2008

Mr. Devinder Singh, Secretary
California Traffic Control Devices Committee (CTCDC)
Caltrans Division of Traffic Operations – M236
1120 N. Street
Sacramento, CA 94274-0001

Request to Experiment with Steady Red Stop Line Lights

Recommendation
That the CTCDC approve the request for experimentation by the City of Los Angeles Department of Transportation (LADOT), dated September 3, 2008, as attached, to install steady red stop line lights at five intersections along the Metro Orange Line and Blue Line.

Sponsored Name
League of California Cities (Southern)

Public Agency Making Request
LADOT

Executive Summary
The FHWA granted a conditioned approval (HOTO-1-4-341 (E)) to experiment with the steady red stop line lights in May 2008. LADOT and the Los Angeles Country Metropolitan Transportation Authority (Metro) have both agreed to comply with the conditions set forth by the FHWA. Such in-pavement lights will illuminate with steady red color only when the comparable phases are red. All other times, the in-pavement lights will remain dark. This is a safety enhancement to reduce red light violations and I recommend approval to proceed with the experiment.

Sincerely,

John E. Fisher

John E. Fisher, P.E.
Assistant General Manager

Attachment
cc: Sean Skehan, LADOT
Kang Hu, LADOT

EQUAL EMPLOYMENT OPPORTUNITY – AFFIRMATIVE ACTION EMPLOYER

CITY OF LOS ANGELES
CALIFORNIA

RITA ROBINSON
GENERAL MANAGER

ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF TRANSPORTATION
100 S. Main St., 10th Floor
LOS ANGELES, CA 90012
(213) 972-8470
FAX (213) 972-8410

September 3, 2008

Mr. John Fisher
California Traffic Control Devices Committee (CTCDC)
100 N. Main Street, 10th Floor
Los Angeles, CA 90012

RE: Request to Experiment with Steady Red Stop Line Lights

The City of Los Angeles Department of Transportation (LADOT) is requesting the CTCDC's approval to conduct an experiment of steady red stop line lights that supplement the traffic signal indications at five intersections along the Metro Orange and Blue Lines. As shown in the attachment, a conditional approval has been granted by the Federal Highway Administration (FHWA) with the reference number of "HOTO-1 4-341 (E) Steady Red Stop Line Lights – Los Angeles".

Also attached are the original request to FHWA and the agreement letter signed by LADOT and the Los Angeles County Metropolitan Transportation Authority (Metro) to comply with the conditions set forth by the FHWA. Three control sites with comparable conditions but at which no experimental devices are installed will be monitored. The analysis and evaluation of the data will be conducted in accordance with Empirical Bayes statistical methods. Engineering plans will also be submitted to the FHWA for approval prior to installation.

LADOT will take the lead in submitting the semi-annual progress reports and a final evaluation report to CTCDC and FHWA during and after the experiment. LADOT will not turn on the devices until approval from CTCDC is obtained.

Thank you for considering the request and if you have any questions or comments, please contact Kang Hu at 213-972-8627.

Sincerely,

Sean Skehan

Sean Skehan, P.E.
Principal Transportation Engineer
LADOT

Attachments
cc: Abdul Zohbi, Metro
Kang Hu, LADOT

Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

May 27, 2008

Mr. Scott Wainwright
Federal Highway Administration
USDOT
1200 New Jersey Avenue S.E.
Washington D.C., 20590

Re: HOTO-1- 4-341(E)-Steady Red Stop Line Lights-Los Angeles

Dear Mr. Wainwright:

The Los Angeles County Metropolitan Transportation Authority (METRO) and the Los Angeles Department of Transportation (LADOT) have received the conditional approval from you for the proposed experiment of the Steady Red Stop Line Lights.

First, we would like to thank you for entrusting us to conduct this experiment that would enhance traffic safety for the Metro Orange Line and Blue Line operations. Second, we concur with the three conditions set forth by the USDOT regarding the proposed experiment and will comply fully with the requirements.

We are looking forward to a successful start for this important safety project.

Sincerely,

Abdul Zohbi,
System safety Manager
METRO

Sean Skehan, P.E.
Principal Transportation Engineer
LADOT

U.S. Department of Transportation
Federal Highway Administration

1200 New Jersey Avenue, SE.
Washington, DC 20590

MAY 9 2008

In Reply Refer To: HOTO-1

Ms. Carolyn Flowers
Chief Operations Officer
Los Angeles Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952

Dear Ms. Flowers:

Thank you for your April 21 letter, co-signed by Mr. Sean Skehan of the city of Los Angeles Department of Transportation, requesting approval to experiment with steady red in-roadway lights along the stop lines at five intersections in the city of Los Angeles along the Metro Orange Line exclusive busway and along the Metro Blue Line light rail transit (LRT) in-street corridor. The red in-roadway lights would be activated by approaching busway or LRT vehicles and would be illuminated steady red only during the time that the vehicle traffic signals controlling the movement(s) crossing the busway or LRT line are displaying red indications.

The purpose of your experiment with the steady red in-roadway lights, which do not conform to the current requirements of the Manual on Uniform Traffic Control Devices, is to evaluate their effectiveness in reducing violations of the red signals and improving safety at intersections along these Metro corridors that continue to experience a high frequency of violations, crashes, and near-misses with transit vehicles, despite the implementation of other, more conventional countermeasures.

We have reviewed your request and we concur with it except for the following:

- In addition to before and after data at the five experimentation sites, it is necessary that comparable data be collected and analyzed at one or more "control sites" having comparable conditions but at which no experimental devices are installed.
- The analysis and evaluation of the data should be conducted in accordance with Empirical Bayes statistical methods, so as to minimize the effects of "regression to the mean."
- Details of the number, placement, and spacing of the in-roadway lights should be forwarded to this office once the engineering plans are completed.

MOVING THE
AMERICAN
ECONOMY

Although the experiment is being funded by the Metropolitan Transportation Authority (MTA), the roadways involved are under the jurisdiction of the city of Los Angeles Department of Transportation (LADOT). Thus, we are granting approval to the LADOT to conduct the requested experimentation for a period not to exceed three years from the date of this letter, subject to our receipt of agreement by MTA and by the city of Los Angeles to comply with the three items listed above. You may e-mail the agreement to Mr. Scott Wainwright of our staff at **scott.wainwright@dot.gov**. We look forward to receiving that agreement and the required semiannual reports and evaluation results from the experimentation.

We appreciate your interest and effort in improving safety and operations at signalized intersections along at-grade transit corridors. For reference purposes, we have assigned the request the following official ruling number and title: "4-341(E)–Steady Red Stop Line Lights – Los Angeles." Please refer to this number in any future correspondence. If we can be of further assistance in this project, please contact Mr. Wainwright by e-mail or by telephone at 202-366-0857.

Sincerely yours,

Robert Arnold
Director, Office of Transportation Operations

Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

April 21, 2008

Federal Highway Administration
1200 New Jersey Avenue, S.E.
HOTO-1
Washington, DC 20590

RE: Request to Experiment In-Roadway Warning Lights

This is a request for permission to conduct an experiment of an In-Roadway Warning Light (IRWL) system that supplements the traffic signal indications at intersections. This non-standard traffic control system, which is comprised of a series of LED lights embedded in the roadway is designed to enhance and emphasize to motorists the conditions of the traffic signal where visibility, background noise or other distractions are a factor. We hope to determine motorists' recognition of changing conditions of the traffic signal, accomplish a reduction of the stop bar incursion and increased compliance with Red traffic signal indications and prohibited turning movements. The proposed experimental project will be funded by the Los Angeles County Metropolitan Transportation Authority (Metro). The Los Angeles Department of Transportation (LADOT) will partner with Metro by providing engineering drawings and construction oversight. Metro will be responsible for collecting and evaluating project data and preparing a final project report. The sponsoring agencies are Metro and LADOT.

1. Statement of Problem

Metro Orange Line

Metro and the City of Los Angeles installed a 14-mile Busway (Metro Orange Line) that connects the North Hollywood Metro Red Line station to the Warner Center on the west side of the Valley. The first thirteen miles of the Busway is located on dedicated right-of-way (ROW) and follows the old Southern Union Pacific Railroad alignment along the Chandler Boulevard corridor. The Busway exits the dedicated ROW at Canoga Avenue and travels the last mile to the Warner Center on city streets. It passes through 44 signalized intersections, 37 of which are located along the dedicated ROW and are new. The facility opened in October 2005 and due to several accidents and numerous near misses reported along the dedicated right-of-way portion of the Busway, a Safety Task Force comprised of key members from Metro, the City and associated law enforcement agencies (LA Police and Sheriff Departments) determined that photo enforcement cameras should be installed at the twelve high-risk intersections. In addition to the photo enforcement at these twelve intersections, additional signage (static Bus X-ing and Look Both Ways, and active LED bus coming signs) and pavement markings (Keep Clear and Wait Here) were installed throughout the Busway where deemed necessary and appropriate. These additional safety features have had a positive impact on the overall safety of the Busway by substantially lowering the incidence of reported accidents and near miss incidents. However, due to the unique nature of the dedicated Busway, it

continues to have accidents and near miss incidents as well as red light violations, stop line adherence issues and creep over issues especially at the aforementioned photo enforcement intersections that we feel could be further reduced by the installation of stop line IRWL system.

Metro Blue Line

The Metro Blue Line (MBL) is a light rail line that runs between downtown Los Angeles and downtown Long Beach and serves 22 stations over a 22-mile route. The Metro Blue Line connects to the Metro Green Line at Rosa Parks/Imperial station in Compton and connects to the Metro Red Line at 7th/Metro Station in downtown Los Angeles. Currently, Metro operates two-car and three-car trains on the line depending on the time of the day. The alignment is made up of two types of corridors. One is known as the "Cab-signal" corridor where trains operate at speeds up to 55MPH and all grade crossings are equipped with flashing warning lights, gates, and bells. The other corridor is know as "Street-running" where trains travel at 35MPH or less and are governed by specially designed train signals that are coordinated with the street traffic lights. It is in "Street-running" corridors, both in Los Angeles and Long Beach, that Metro is experiencing accidents that are a result of motorists making illegal left turns in front of oncoming trains. Throughout the street-running alignments, there are dedicated left turn lanes where the left turning movement is governed by dedicated left turn arrows. Adjacent to the arrows, Metro has installed active "TRAIN" warning signs that activate when a train approaches the intersection and the red arrow is on. Despite the additional warning devices installed, Metro continues to experience accidents where motorists violate the red left turn arrows and collide with trains at the intersections. Therefore, to further increase safety and awareness at the intersections, Metro and LADOT are proposing to conduct a trial installation of the IRWL system.

2. Proposed Solution

The proposed solution is an experimental installation of the IRWL System. After years of study, human factors indicate that such a system could be an effective way of increasing awareness for motorists of prohibited movements. The IRWL System is to be used only as an enhancement to the standard traffic signal control device. Because of the strategic placement of this system the series of lights will be in direct line of sight of the motorists making it virtually impossible for the motorist not to be aware of the red signal indications.

3. Illustration of In-Roadway Warning Lights System

The warning lights will be installed across the stop lines, and on the outside of the crosswalk area. When the traffic signal phase is green or yellow, the in-roadway warning lights will not be activated. When the traffic signal phases turn to red, the in-roadway warning lights will change to solid red and remain illuminated for the entire length of the red phase that governs the prohibited movement.

4. Supporting Data

The In-Roadway Warning Lights System was first tried by the City of Anaheim at Southwest intersection during the construction of Disney's California Adventure theme park. The primary goal of the installation was to reduce/eliminate the north-south red light violations, thus improving the safety of the intersection. Studies show that the In-Roadway Warning Lights System was able to significantly reduce the incidences of vehicles running the red light from a rate of 8.94 violations per 1000 vehicles to 2.40 violations per 1000 vehicles after the system was installed. Once the theme park was completed the intersection has been reconfigured.

5. No Patent or Copyright

Both Metro and LADOT certify that the concept of the In-Roadway Warning Lights is not protected by a patent or copyright. More than one vendor can provide similar devices.

6. Experiment Schedule and Locations

a.	Design and Engineering	May through September 2008
b.	Installation	October through December 2008
c.	Experimental and Evaluation Period	January 2009 - June 2010
d.	Final Written Report	September 2010

LOCATIONS		CROSS STREET	FUNCTIONAL CLASS
a.	De Soto Avenue	Busway	Major
b.	Sepulveda Boulevard	Busway	Major
c.	Mason Avenue	Busway	Secondary
d.	Woodman Avenue	Busway	Major
e.	Washington Blvd.	Los Angeles Street	Major (Blue Line Light Rail)

7. Evaluation Plan

All of the five intersections selected for the In-Roadway Lighting installation are equipped with red light enforcement camera systems. The camera systems have been functioning at these locations for over 1 year. Past traffic counts and red light violation data is available for comparison to the future data from the red light enforcement cameras systems that will be collected during the In-Roadway lighting experiment period. This comparison will be used to determine the effectiveness of In-Roadway lighting in reducing red light violations.

8. Evaluation Procedures

- LADOT will prepare the design and engineering drawings and provide construction oversight.
- Installation documentation will be prepared by Metro.
- Motorists' recognition to changing traffic signal conditions and ability to react in a timely fashion will be analyzed by or under direction of LADOT.

- Field observations will be conducted by the LADOT to help evaluate the effectiveness of the installation.
- Metro will be responsible for collecting and evaluating project data, preparing semiannual progress reports for the duration of the experimentation and providing a copy of the final results to the Office of Transportation Operations (HOTO) within three months of the conclusion of the experiment.

9. Restore to Before Conditions

Both Metro and LADOT agree to restore the experimental site to a condition that complies with the provisions of the MUTCD within 3 months following the completion of the experiment. We will terminate the experiment at any time if we determine that the experiment directly or indirectly causes significant safety hazards. However, if the experiment demonstrates an improvement, the devices will remain in place as a request is made to update the MUTCD and an official rulemaking action occurs.

Thank you for considering the request for experimentation. If you have any questions, comments or suggestions, please contact Mr. Abdul Zohbi of Metro at 213-922-2114, or Mr. Kang Hu of LADOT at (213) 972-8627.

Sincerely,

Carolyn Flowers, Chief Operations Officer

Mike Cannell, General Manager, Rail Operations

Sean Skehan, Principal Transportation Engineer
LADOT

cc: FHWA's District Office in California
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

09-10 Section 2B.13 Speed Limit Sign (R2-1) of CA MUTCD

The issue that will be discussed the impact of the soft floor policy and possible alternatives.

7. Discussion Items:

09-11 Slogan Broken Heart

CITY OF GUSTINE

P.O. Box 16 • 682 Third Ave. • Gustine, CA 95322
Office: (209) 854-6471 • Fax: (209) 854-2840 • www.cityofgustine.com

Mr. Wayne Henley
Chief, Traffic Operations - Office of External Support
Traffic Operations – MS36
1120 N Street
Sacramento, CA 95814

Dear Mr. Henley:

Our citizen Mr. Leonard Holmquist has been championing a traffic safety project for our community. Mr. Holmquist has brought his passion to our city officials, who are very supportive and behind this project.

Mr. Holmquist along with our city officials believe that his image would make a significant impact to those driving through our community. The location of the proposed heart is one where many pedestrians cross Highway 33/140, and this is also the site of a tragic death of a child.

Mr. Holmquist has full support of the City Council and I; the Mayor and I are also looking forward to the opportunity of meeting with you and the Traffic Safety Committee in January in support of the "Broken Heart" safety project.

Thank you for your consideration of our project.

Sincerely,

Margaret Silveira
City Manager

Cc: Rich Ford, Mayor
Ed Von Dorstel, Traffic Safety Committee
Derinder Singh, Caltrans
Mark Orr, Caltrans

Mr. Wayne Hensley

Oct. 6, 200

Dear Sir,

My name is Leonard Holmquist. I live in Gustine, Ca.

After approaching My City Council with Something of interest for safety, we made contact with State of California, Stockton, Ca. Set a meeting with Mr. Mark Orr and Ms Mary Ann Sellers. These people came to Gustine, for a meeting with me, to discuss a "Broken Heart" (Red) painted where we lost an 8 year old girl at a school crosswalk, with a pickup truck.

My interest is to remind people of "safety" while driving and remind them that some family get a "broken heart" by someone not driving properly.

Mr. Orr directed me to your organization. I Called Mr. Devinder Singh and Mr. Ed Von Borstel. The direction from Mr. Singh was to get on your next meeting on Jan. 15, 2009 and Come to present this to all Concerned.

My City Council and approximately 150 people from local organizations are interested in the possible Application of this "Broken Heart."

I have enclosed pictures that I will be taking to the Committee if allowed to present this project.

The family of the girl, has asked for no recognition and I am also asking for no personal recognition.

Many minor details will be addressed in my Presentation

I have included a letter from my City Manager, Margaret Silveira. I have asked the City Manger and Mayor of Gustine, to accomany me to this meeting in January.

Please advise me as to a time, so I will be ready for this important meeting, that you are Considering for the "Broken Heart" on the roadway.

Yours truly,
Leonard Holmquist
1400 Meredith ave
Gustine, Calif 95322

Copy To:

Mr Dirinder Singh Sec CTCDC
Mr Ed Von Marstel Deputy Director CTCDC
Mr Mark Orr Department of Trans Dist 10 Stockton

09-12 Variable Speed Limit Signs

MEMORANDUM

TO:	Cyrus Minoofar – Alameda County Congestion Management Agency-Horn Associates		
FROM:	Habib Shamskhou, DKS Associates		
DATE:	December 3rd, 2008		
SUBJECT:	Legal status of Variable Speed Limit Signs	P/A No.	07239-002

This memo reviews the legal status of variable speed limit signs (VSLS) in California and the powers and authorities of Department of Transportation to implement VSLS, then recommends appropriate actions to facilitate the implementation of VSLS on I-80 Corridor.

California Vehicle Code

The California Vehicle Code (CVC) establishes the authority for the Department of Transportation to establish speed limits, and in particular provides the authority to use VSLS on freeways. The authority to install and operate VSLS is covered in section 22355, reproduced below directly from the CVC available on the DMV's website.

Variable Speed Limits

22355. Whenever the Department of Transportation determines upon the basis of an engineering and traffic survey that the safe and orderly movement of traffic upon any state highway which is a freeway will be facilitated by the establishment of variable speed limits, the department may erect, regulate, and control signs upon the state highway which is a freeway, or any portion thereof, which signs shall be so designed as to permit display of different speed limits at various times of the day or night. Such signs need not conform to the standards and specifications established by regulations of the Department of Transportation pursuant to Section 21400, but shall be of sufficient size and clarity to give adequate notice of the applicable speed limit. The speed limit upon the freeway at a particular time and place shall be that which is then and there displayed upon such sign.

Amended Ch. 78, Stats. 1973. Effective January 1, 1974.

Uniform Standards

22355 refers to section 21400, which is included below for information. 22355 specifically states the signs do not need to comply with 21400.

21400. The Department of Transportation shall, after consultation with local agencies and public hearings, adopt rules and regulations prescribing uniform standards and specifications for all official traffic control devices placed pursuant to this code, including, but not limited to, stop signs, yield right-of-way signs, speed restriction signs, railroad warning approach signs, street name signs, lines and markings on the roadway, and stock crossing signs placed pursuant to Section 21364.

The Department of Transportation shall, after notice and public hearing, determine and publicize the specifications for uniform types of warning signs, lights, and devices to be placed upon a highway by any person engaged in performing work which interferes with or endangers the safe movement of traffic upon that highway.

Only those signs, lights, and devices as are provided for in this section shall be placed upon a highway to warn traffic of work which is being performed on the highway.

Any control devices or markings installed upon traffic barriers on or after January 1, 1984, shall conform to the uniform standards and specifications required by this section.

Amended Ch. 291, Stats. 1983. Effective January 1, 1984.

Engineering and Traffic survey

Section 22355 provides that the determination of the need for VSLS must be on the basis of "an engineering and traffic survey". This is defined in the CVC by section 627 and is reproduced below.

Engineering and Traffic Survey

627. (a) "Engineering and traffic survey," as used in this code, means a survey of highway and traffic conditions in accordance with methods determined by the Department of Transportation for use by state and local authorities.

(b) An engineering and traffic survey shall include, among other requirements deemed necessary by the department, consideration of all of the following:

(1) Prevailing speeds as determined by traffic engineering measurements.

(2) Accident records.

(3) Highway, traffic, and roadside conditions not readily apparent to the driver.

(c) When conducting an engineering and traffic survey, local authorities, in addition to the factors set forth in paragraphs (1) to (3), inclusive, of subdivision (b) may consider all of the following:

(1) Residential density, if any of the following conditions exist on the particular portion of highway and the property contiguous thereto, other than a business district:

(A) Upon one side of the highway, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.

(B) Upon both sides of the highway, collectively, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.

(C) The portion of highway is longer than one-quarter of a mile but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph (A) or (B).

(2) Pedestrian and bicyclist safety.

Amended Ch. 466, Stats. 1982. Effective January 1, 1983.
Amended Sec. 1, Ch. 45, Stats. 2000. Effective January 1, 2001.

NCHRP Legal Research Digest

NCHRP Legal Research Digest, March 2002-Number 47 was devoted to "Judicial Enforcement of Variable Speed Limits". According to that report, "the only statutory provision that was found in any state's laws specifically related to a 'variable speed limit' was Section 22355 of the California Vehicle Code. This section allows the DOT, on the basis of an engineering and traffic study that shows the 'safe and orderly movement of traffic' will be facilitated, to 'erect, regulate and control signs…so designed as to permit display of different speed limits at various times of the day and night.' The speed limit on the freeway 'at a particular time and place shall be that which is then and there displayed upon such sign.'"

The researchers reported no "…known court challenges to enforcement of the existing 'variable' speed laws".

California Traffic Control Devices Committee (CTCDC).

DKS Associates has established contact with the Chair of the CTCDC, Mr. Hamid Bahadori. While he has expressed the opinion that the existing legislation adequately covers the definition and use of VSLS in California, he has suggested that it would be prudent to bring the matter to CTCDC for formal endorsement. Mr. Bahadori has been out of the office in past ten days and we have not been able to meet

or have our conference call with him. Once you had a chance to review this memo, we would like to share this with him.

Discussion

It is clear that the CVC authorizes the DOT to implement VSLS, and that the speed limits indicated by these signs are enforceable. While an "engineering and traffic survey" is required before the signs are implemented, no such survey is required before the displayed speed limit can be changed. Once installed, the Department may control the signs to display "…different speed limits at various times of the day or night". There is no legislative definition of the basis on which the different speed limits may be determined. As long as the manner in which they are used is consistent with the "engineering and traffic survey", then the Department is free to select the speed limit it deems appropriate at any time of day or night.

The CVC defines the considerations that must be included in the "engineering and traffic survey", but does not define the methodology nor does it mandate any specific response to a particular condition. This is left entirely to engineering judgment, as long as the considerations of CHP and relevant local authorities are taken into account.

The Department is required to establish the procedures to be used by state and local authorities when determining speed limits. At present, the Department does not have a specific requirement for determining the appropriate range of speed limits to be used in a situation where variable speed limits would be used based on traffic conditions. It would be appropriate for a new procedure to be instituted to specifically accommodate this situation.

Conclusion and recommendation

There is no legal impediment to use of VSLS in California. No change to the CVC is required to implement VSLS in California. The Department of Transportation does not have a suitable procedure in place for the conduct of an "engineering and traffic survey" that is appropriate for implementation of VSLS. Once in place, the VSLS may be varied from time to time without preparation of a new "engineering and traffic survey" and the displayed speed limit will be enforceable. The CVC allows VSLS to be in a form that is different from speed limit signs generally in use, and therefore they may be at variance with the California MUTCD. However, it would be prudent to seek the endorsement of the CTCDC.

It is recommended that:

- Department of Transportation prepare a procedure for an "engineering and traffic survey" that is appropriate for the installation of Variable Speed Limit Signs.
- Proposed VSLS be submitted to CTCDC for endorsement.

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